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PART OF

An Address

ON

SENSORY CHANGES IN THE DIAGNOSIS OF TRENCH FEVER.

Given before a Base Medical Society in France,

BY D. W. CARMALT JONES, M.D. OXON., F.R.C.P. LOND.,

MAJOR, R.A.M.C. (T.); PHYSICIAN TO WESTMINSTER HOSPITAL.

MR. PRESIDENT AND GENTLEMEN,—It has long been known that inflammation of viscera may be associated with areas of increased sensibility of the skin. This association has been investigated by many clinical workers, notably by Sir James Mackenzie and by Dr. Henry Head.

Some work has recently been done in the medical division of a base hospital in France upon the general principles laid down by these observers. It has been made a routine practice to examine the skin for hyperalgesia in internal disease of all kinds, and the records of 500 consecutive examinations are now available. Definite segmental areas of increased sensibility to pain have been found in fairly constant relation with lesions of the various viscera, as indicated by symptoms and physical signs, and certain groups of segments have been so frequently found to be hyperalgesic in cases of trench fever that their presence appears to constitute a point of considerable diagnostic value.

Some account of this method of clinical examination is here given, together with a summary of the results obtained in visceral lesions in general and in cases of trench fever in particular.

PRINCIPLE.

The work of Gaskell[1] has made it possible to construct a working hypothesis which explains the results obtained by this method of examination, and the principle adopted in present paper is this:—

The central nervous system was originally segmentally arranged, starting behind the infundibulum and reaching to the end of the body. All typical segmental nerves have four roots, afferent and efferent somatic, and afferent and efferent splanchnic. The impulses carried by the afferent splanchnic nerves, which come from the viscera, are not appreciated in consciousness; it is impossible to tell by any consciously felt sensation what is the state of activity of any viscus, for instance, whether the kidney is secreting or the intestine contracting. But when any one of the viscera is *inflamed* the impulses which pass from it by the afferent splanchnic nerves to the cord are such that they induce a state of hyperexcitability throughout the segment to which they belong, and this excitability affects especially the somatic afferent nerves. The result is this, in a case of inflammation of any viscus, a light pin-prick, insufficient to cause pain when applied to the normal skin, is resented as positively painful over the area of skin innervated from the same segment as the affected organ.

If this is true, it follows that in a given case inflammation can be diagnosed in any viscus of which the afferent nerve-supply is known by demonstrating hyperalgesia in the corresponding segmental area on the skin. To put the matter colloquially, every segment receives an afferent nerve from a viscus, and if the viscus is inflamed the skin area connected with the same segment becomes hyperalgesic. This is the principle which has guided the examinations to be described.

PRACTICE.

The practice is as follows:—

A series of light pin-pricks is applied to the skin along a line which cuts across a number of segmental areas, a line, for instance, from the clavicle to Poupart's ligament. When the pricks pass from a normal to a hyperalgesic area the patient will be seen to flinch, for this is an objective sign which depends not upon what the patient says, but upon what he is seen to do. The spot where the flinch occurs is marked with a skin-pencil, and the experiment is repeated from below upwards and the skin marked again. The observer passes both outwards and inwards from his original line, and repeats the experiment until he has mapped a complete segmental area corresponding to one or more segments. With rare exceptions a corresponding symmetrical area can be mapped on the opposite side of the body. Nothing "counts" in this method unless the whole of one or more segments can be accurately mapped out.

If, after it has been identified, a series of pricks is made within the hyperæsthetic area, and another series outside it, and the patient be asked which feels the sharpest, he will indicate the former, but the difference is rarely very great; the *edge* of the area is chiefly sensitive, so that it is the passage from the normal to the hyperalgesic that induces the characteristic flinch.

Further, within a hyperalgesic area including more than one segment, a similar flinch occurs in passing over the border between any two. Thus, when all the lumbar segments are involved, as they often are, in trench fever, a series of pricks, starting opposite the middle toe and passing up the dorsum of the foot towards the ankle, induce a flinch about half-way across the foot, on crossing from the first sacral to the fifth lumbar area. Continuing upwards along the front of the leg towards the knee another flinch will be aroused just above the ankle, where the fourth lumbar area joins the fifth, another above the knee where the third joins the fourth; and higher still on the front of the thigh will be found the lower borders of the second and first. (See Figs. 3 and 4.) Each segment can be followed right up to the middle line of the back, and it is thus possible to map each one of a series of areas in its entirety.

A suitable pricker for the purpose is a wooden match sharpened to as fine a point as possible, it should be used in the manner taught by the late Sir William Gowers; the match is held between the thumb and index finger, and the tip of the middle finger is brought alongside of the point; the prick is made with the match held vertically to the skin, and the tip of the middle finger is made to touch the skin at the same time, for when the skin is thus always felt by the finger, it is much easier to maintain a uniform pressure throughout, which is, of course, of the essence of the experiment.

A proportion of people appear to undergo no increase in sensitiveness when any of their viscera are inflamed; for instance, there are 100 negative cases in the present series of 500, and among positive cases the degree of sensibility varies very greatly, some are so sensitive that they jump all over the bed when examined; others require considerable pressure to bring out any difference. The amount of force applied must be suited to the case under examination. The pricks should be about ⅛ to ¼ inch apart, and made at the rate of about ten in 5 seconds; very light pricks should be used at first and increased in force as required; an experiment on the back of one's own hand will indicate that the stimulus is a more searching one than at first sight might be expected.

GENERAL RESULTS.

The present paper is concerned more with the application of this method to trench fever than with its general utility—a few words, therefore, will suffice for the latter.

The material examined consists of about 500 consecutive patients suffering from fevers of various kinds and from disease of the circulatory, respiratory, alimentary, and genito-urinary systems.

In the course of the examinations it has been possible to map every segmental area on the surface of the body with sufficient frequency to give a fairly definite idea of the distribution of each of them, and it is possible to state with tolerable confidence that in sensitive subjects one area is associated with heart disease, another with respiratory disease, another with renal disease, and so on. One cannot say that heart disease is associated with one group and one group only, but rather that a certain large area is involved, and any given sensitive case will show hyperalgesia of some segment within that area, of which one particular series is the most frequent.

The general results obtained are summarised below, the segmental areas most frequently found hyperalgesic in inflammation of the viscera being stated. It is only a list of instances and makes no pretensions to completeness. With regard to the first two instances given, the upper nasal passages and the middle ear appear to be

[1] Gaskell: The Involuntary Nervous System.

visceral in development and possess the visceral character of exciting hyperalgesia in a segmental area of the skin when they are inflamed. They are of importance, as they then afford opportunities of mapping the distribution of the upper two divisions of the trigeminal.

Upper nasal passages: Trigeminal, upper division.	Heart: 2, 3, 4, 5 dorsal.
Middle ear: Trigeminal, middle division.	Stomach: 7, 8, 9 dorsal.
Parotid gland: Trigeminal, lower division.	Liver: 7, 8, 9 dorsal right, 7 dorsal left.
Tonsil: 2 or 3 cervical.	Small intestine: 10 dorsal.
Larynx, trachea, lungs: 4, 5, 6 C.	Kidney: 11 dorsal.
	Testis: 12 dorsal.
	Large intestine: 1, 2, 3, 4, 5 sacral.

It will be seen that, if these observations are correct, this method of examination supplies a considerable addition to the ordinary means of diagnosis.

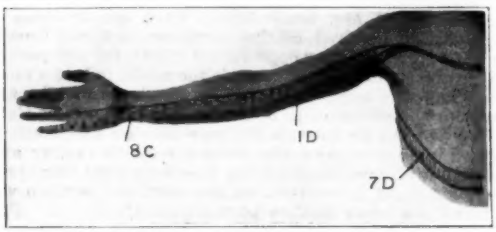
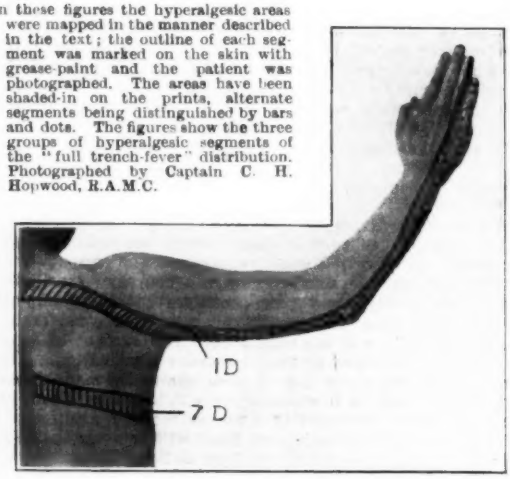


FIG. 1.—Upper and middle groups, anterior view.



In these figures the hyperalgesic areas were mapped in the manner described in the text; the outline of each segment was marked on the skin with grease-paint and the patient was photographed. The areas have been shaded-in on the prints, alternate segments being distinguished by bars and dots. The figures show the three groups of hyperalgesic segments of the "full trench-fever" distribution. Photographed by Captain C. H. Hopwood, R.A.M.C.

FIG. 2.—Upper and middle groups, posterior view.

RESULTS IN TRENCH FEVER.

Among the patients examined in this series were about 130 cases of "fever" of various kinds, including trench fever, malaria, cerebro-spinal meningitis, scarlet fever, measles, rose measles, mumps, diphtheria and surgical septicæmia. Of these, trench fever and malaria were commonly associated with hyperalgesia of three definite groups of segments which do not correspond with those belonging to any of the viscera enumerated above.

In no other fever was anything of this kind found; cases in which there were clear symptoms or physical signs pointing to inflammation of any viscus often showed hyperalgesia over the appropriate segments, but that was all. The parotitis of mumps, the bronchitis of measles and the nephritis of scarlet fever all showed typical areas, and throughout the fevers, in cases of severity the eleventh dorsal area, corresponding to the kidney, was often hypersensitive, and when this was so albumin was nearly always to be found in the urine; this is especially true of surgical septicæmia. The inference is that the kidney suffers damage in the process of eliminating bacteria and their toxins.

But hyperalgesic areas of unexplained origin were found only in trench fever and malaria. In these fevers the following were found: the eighth cervical and first dorsal, the seventh dorsal, and the first, second, third, fourth, and fifth lumbar. This is the "full trench fever distribution," and is found frequently in its entirety, and in nearly every case which is diagnosed as trench fever on clinical grounds this distribution is to be found more or less complete.

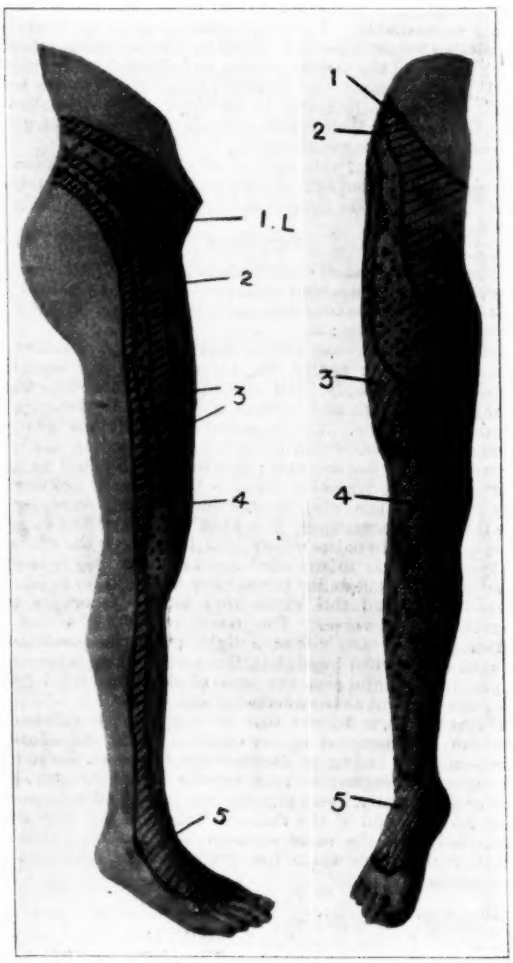
In this series 73 cases of trench fever have been examined, and in the following table are set out the segmental areas of hyperalgesia found:—

Upper Group—		**Lower Group—**	
8 C., 1 D.	29 } 39	1, 2, 3, 4, 5 L.	57 } 67
1 D. (alone)	10 }	Incomplete lumbar ...	10 }
Middle Group—		**"Full Trench Fever"—**	
7 D. (alone)	55 } 68	8 C., 1 D.; 7 D.; 1, 2, 3, 4, 5 L.	24
7 D. + adjacent areas ...	13 }	Nil	5

Eighteen cases of malaria were examined, of which 16 showed precisely similar areas to those found in trench fever. In no other fever was this the case.

CONCLUSION.

It is suggested, therefore, that hyperalgesia of these particular segments is diagnostic of a group of diseases consisting of malaria and trench fever, and it is remarkable that one of them is mosquito-borne and the other louse-borne; that both appear to be protozoal, with a definite



FIGS. 3 and 4.—Lower group, lateral and anterior views.

cycle of development, as shown by the periodicity of the febrile attacks induced by them; that both appear to lie dormant for considerable periods within the body; and that both are associated with enlargement of the spleen.

These hyperalgesiæ are precisely similar to those found in inflammation of the viscera, but it is difficult to see to

what viscera they can correspond, though a few possibilities suggest themselves.

The eighth cervical and first dorsal areas perhaps indicate an affection of the thyroid gland; no opportunity has recently arisen of examining a case of Graves's disease, but a case of acute thyroiditis lately examined showed some hyperalgesia of the first dorsal.

The seventh dorsal area may possibly indicate the spleen, which is enlarged in both the diseases concerned, or else the suprarenal gland, since there is evidence of increased excitability of the sympathetic in trench fever, as has been pointed out by Major H. F. Marris, R.A.M.C. Also the physiological association between thyroid and suprarenal should be borne in mind. Cases of Addison's disease and of splenitis from any cause would go far to elucidate this point.

The cause of hyperalgesia of the lumbar segments is quite obscure; it does not appear to be any condition of the small intestine, kidney, testis or large intestine, and it is difficult to see what remains. In the only two cases of cystitis so far examined some lumbar segments were found involved, in one of them the first three, but the absence of symptoms pointing to any vesical disturbance makes such a view difficult to accept; at present it must be said that the significance of a lumbar hyperalgesia in these diseases is unexplained.

VALUE IN DIAGNOSIS.

Anyone who systematically investigates the skin sensibility in trench fever will hardly fail to be struck with the frequent occurrence of these hyperalgesic areas. The writer regards them as diagnostic when malaria can be excluded. These particular areas are demonstrable in so many cases of typical trench fever that it is not a very long shot to suggest that afebrile cases of other disorders, such as D.A.H. and debility, which show the same changes, are suffering from a chronic form of the same infection, if there has been a reasonable chance of exposure. It is certainly the case that a large proportion of patients in military hospitals who have served for such a period as two years in France, and who show the familiar signs of exhaustion, give this evidence of trench fever infection, and trench fever thus appears responsible for a very serious amount of military wastage.

For instance, among 100 cases of D.A.H. examined at a "heart centre" in France, who showed positive changes in sensibility, 67 gave evidence pointing to trench fever alone, and 33 had signs of a true heart lesion, and of the latter 22 showed signs of trench fever in addition. Assuming these signs to be trustworthy, they mean that among 100 cases of D.A.H. taken at random and serious enough to reach a heart centre, two out of three were due to trench fever alone, and eight out of nine were due to this infection, at least in part.

If this is true, or anything like true, it is a very serious indictment of trench fever as a source of invaliding. It is believed that such cases can be picked out when required by a systematic examination of the sensibility of the skin.

The existence of bilateral hyperalgesia of the skin in trench fever has already been pointed out by Major Marris, to whom the writer's thanks are due for his first introduction to that phenomenon. His thanks are also due to Lieutenant-Colonel J. S. Warrack, R.A.M.C., commanding an infectious compound, for his kindness in allowing the examination of cases of the acute fever, and in special degree to his colleague, Captain C. E. Pepper, R.A.M.C., for continuous help and suggestion.

In conclusion, it is obvious that the material examined is insufficient to admit of any final and dogmatic assertion as to the pathognomonic character of the hyperalgesic areas described in trench fever, but they are found so frequently, and the experiment is so striking, that the phenomenon seems to be worth bringing to the notice of those interested for more extended investigation.

INFLUENZA IN INDIA.—There has been a widespread epidemic of influenza throughout India, introduced, the medical officers of health agree, through shipping. The health officer of the Calcutta Corporation has issued a leaflet containing simple rules to be observed: (1) Avoid unnecessary exposure and fatigue; (2) do not travel in overcrowded tramcars; (3) do not visit overcrowded places of public resort; (4) do not neglect apparently trifling symptoms of ill-health; (5) if attacked, go to bed and stay there until your doctor allows you to get up; (6) the first case in a house should be isolated, the sputum (if any) disinfected, handkerchiefs, &c., boiled.

THE PATHOLOGICAL DIAGNOSIS IN GUNSHOT INJURIES OF PERIPHERAL NERVES.

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(Report to the Medical Research Committee.)

IT is rarely difficult to make an anatomical diagnosis in peripheral nerve injuries except in a few of the complex lesions of the brachial plexus, but in order to estimate the prognosis or advise the correct line of treatment—other than the routine postural and nutritional treatment of the paralysed or paretic muscles—it is necessary also to be able to diagnose as accurately as possible the pathological condition of the nerve at the site of the injury. This is always a difficult problem to solve with certainty, but observations made before and after operations, when it is practicable to make a fairly trustworthy examination of the nerve at the point of injury, have enabled us to recognise certain signs and symptoms as indicative of the various conditions. In some cases only a speculative opinion can be given, but the manifestations discussed in this paper are put forward with the intention of promoting a better recognition of the various complications and are the result of observations made on more than 2000 patients.

Nature of Injury.

The initial injury may be:—

(i.) So-called *concussion*, in which no nerve fibres are divided, but there is a temporary loss of conduction.

(ii.) *Partial division*, in which the missile either divides a variable number of the more peripheral fibres or, in the case of large nerves like the sciatic, passes through the trunk, severing the central fibres. In either instance the division is incomplete.

(iii.) *Complete anatomical division.*

(i.) In concussion a satisfactory recovery occurs usually within three or four months, unless compression by the neighbouring scar tissue supervenes.

(ii.) In partial division the extent of recovery will depend upon the number of fibres divided and the character and extent of the scar in the vicinity.

(*a*) When very few fibres have been lacerated a good functional result may be anticipated, provided the scar causes no complications.

(*b*) When a large number of fibres have been severed the ultimate recovery will be incomplete without surgical intervention. The recovery of function will depend also upon which fibres have been injured most seriously, since a considerable functional disability must follow an injury which involves chiefly motor fibres. The regenerating fibrils will form a neuromatous bulb, and on account of the close proximity of the scar there must be inevitably a constant risk of implication of the intact fibres by it. The perineural scar may cause compression and the intraneural fibrosis is most likely to give rise to irritation, both complications being frequently associated in such cases. In severe forms the perineural or intraneural scars, or both combined, finally may destroy completely all conduction in the undivided fibres, and the clinical condition then becomes that of complete division; this is particularly probable when the missile has traversed the centre of the nerve.

Compression necessarily disturbs the blood-supply of a nerve, and may in this way itself lead to symptoms of irritation.

Consequently, in partial division the recovery may be almost perfect, incomplete, or complicated by compression, irritation, or both.

(iii.) In complete anatomical division no recovery is to be expected without suture of the nerve, but it is important to remember that the regeneration at the extremity of the proximal end will produce an end bulb and the growing fibrils will ramify widely in the surrounding tissues. It has been shown already that complete loss of conduction may succeed concussion or partial division (being the result of strangulation by the perineural scar or conversion of the injured segment into a fibrotic cord), as well as complete anatomical division.

Scheme of Examination.

At the outset, whatever the initial injury may be, the loss of conduction is profound, and it is rarely possible at an

early date to estimate with any degree of accuracy the precise extent of the damage; nor is it practicable, for this reason and because of the possibility of compression or irritation subsequently, to give a prognosis at this time. The necessary delay in determining the pathological diagnosis is really of slight disadvantage, since the condition of the wound rarely permits any special treatment being adopted. During this time the affected muscles are constantly supported by suitable appliances, and their nutrition and the mobility of joints maintained as well as possible by massage, rhythmical electrical stimulation, and passive movements. Throughout this time the patient ought to be systematically examined at regular intervals in order to observe any motor, sensory, or trophic changes which may lead to the establishment of a correct pathological diagnosis.

A useful scheme of examination for routine work is the following:—

1. *History.*—Inquiry should be made as to the condition at the time of injury and the presence or absence of any special subjective symptoms. The treatment previously given and the history of recovery or relapse should also be noted. Attention must not only be paid to operations on nerves, but also to ligature of any of the main blood-vessels. The time of onset of the paralytic or sensory symptoms is also important, as in cases of pure compression it may be delayed until the wound heals.

2. *Mobility.*—It is necessary to test the range of passive movement at all the joints in the region of the disability; this will demonstrate the presence of muscular or fibrous contractures and arthritic adhesions, and thus not only prevents mechanical limitation of movement being mistaken for muscle weakness of nervous origin, but also manifests changes due to nerve irritation or ischæmia.

3. *Motor.*—The range and power of voluntary contraction of all the muscles of the affected limb must be examined, and the condition and tone of any paretic or paralysed groups noted. It is scarcely necessary to emphasise the care required in testing movements of certain individual muscles of the hand, such as the abductor brevis pollicis or the interossei. At this stage any electrical tests may be performed, which examination is also of service in helping to recognise functional loss of power, a complication not infrequently found in the presence of nerve irritation.[1]

4. *Sensory.*—An accurate knowledge of the subjective sensory troubles is of great diagnostic value, and therefore it is useful to make a careful inquiry into any form of pain or similar manifestation. After testing the objective sensory disturbances they should be charted for comparison of findings at subsequent examinations; to prevent error the examinations of cutaneous sensation should, as far as possible, be carried out under the same conditions, since variations in temperature may materially modify sensibility.

5. *Trophic.*—The localisation of any abnormal vaso-motor state and the appearance of the skin supplied by the affected nerve are of great service. The surface temperature of the skin is lowered in complete division and commonly raised in irritation. The presence of more obvious conditions, as "glossy" skin, ridging of the nails, arthritic changes, hyperidrosis, œdema, loss of hair, and trophic sores, are less likely to pass unobserved.

6. *Palpation of the nerve.*—This is a most useful procedure and must be done not only at the site of the injury, but also along the full course of the nerve distal to this point, and any subjective experience resulting from it noted. Great significance has been given to the diagnostic value of this examination, but it seems clear that considerable experience and judgment is required in order to interpret correctly the results.

Concussion.

In uncomplicated concussion recovery usually commences within two to four weeks in both sensory and motor fibres, the very earliest change being commonly found in a concomitant recession of the anæsthesia and analgesia proximally.

The muscles rarely show any advanced wasting, and it is uncommon to discover any extensive loss of deep sensibility; if this has temporarily disappeared, it generally returns at an early date. Consequently, very early indications of recovery with only slight atrophy of muscles and no loss, or rapid return, of deep sensibility may be considered as evidence of concussion. Unless some complication arises patients suffering from concussion show spontaneous, rapid, and complete recovery often before the wound has healed, at which time there is still a risk of compression occurring.

Compression.

This is the usual cause of delayed involvement of nerves or may complicate concussion or partial division, but its manifestations are only to be expected when the wound has healed and the scar contracts. Consequently, the onset of paralytic or sensory symptoms during convalescence, the sudden cessation of recovery, or a relapse would suggest its presence.

A prominent symptom often marking the onset is the appearance of pain of a neuralgic type along the course of the nerve, the pain being commonly induced by movement or stretching of the nerve trunk. Pain caused by a movement which stretches the nerve is very suggestive of perineural adhesions. A peculiar sensory dissociation, in which the analgesia to the prick of a pin is more extensive than the anæsthesia to the lightest application of a small camel hair-brush, has been described in a previous paper as a characteristic phenomenon in compression.[2]

There is a tendency for the compression to become progressively worse and, in the most severe types, it may proceed to strangulation of the nerve and complete loss of conduction.

Irritation.

This complication is found most frequently in cases of incomplete anatomical division and is often associated with compression.

In rare circumstances clinical manifestations of irritation are found, but at operation it is discovered that the missile has passed close to the nerve without lacerating any fibres, and the resultant scar has not implicated in any way the nerve. It seems probable, from the histological examination of excised portions of nerve in such cases, that minute hæmorrhages from ruptured vasa nervorum with their subsequent replacement by granulation tissue are responsible for the irritation. Therefore it seems possible that occasionally concussion, in which small intraneural hæmorrhages have occurred, may be complicated by symptoms of irritation.

Perineural adhesions alone, apparently by disturbing the blood-supply of the nerve, occasionally also cause mild symptoms of irritation.

The onset of irritation is usually early, within the first ten days when produced by the initial hæmorrhage, but it may be delayed until such time as the scar begins to invade the intact fibres. The clinical manifestations of irritation are numerous, but only a certain proportion are to be expected in any one case. The clearest manifestations are found in irritation of nerves containing a large proportion of sympathetic fibres, as the median, sciatic or its principal branches, and the ulnar.

Pain is the most constant and frequently the most predominant symptom, but it differs in character, situation, and in certain other ways from that found in compression. It is described as "burning," "pricking," or even "stinging" in character, is experienced in the sensory distribution of the affected nerve, and is influenced markedly by variations in temperature. Patients showing the dual complication of irritation and compression generally give quite a clear and distinct account of the two types of pain they experience, that indicating irritation differing completely from the neuralgia of compression.

The other signs are the trophic changes, the presence of which always denotes irritation or ischæmia from occlusion of one of the principal arteries. They vary in different cases both in extent and character, since they depend upon the site and seriousness of the laceration and source of irritation. When only a few fibres have been divided a petechial or herpetiform eruption in the sensory field of the nerve is sometimes observed, but a more frequent occurrence is hyperæmia of the skin, generally with definitely increased surface temperature, hyperidrosis, and œdema. In almost all there is hyperalgesia, often very intense, to the slightest pressure over part or the whole of the skin supplied by the nerve. Later the more serious manifestations occur, represented by trophic sores, "glossy" skin, "ridging" of the nails, loss of hair, localised osteoporosis, and fibrous contractures of muscles supplied by the injured nerve.

Palpation of the nerve shows it to be exquisitely tender, not only at the site of laceration but distally, and slight compression of its trunk below the injury (where it can often be felt to be swollen) causes severe pain, usually radiating along the course of the nerve. The results of palpation are particularly useful signs of irritation, although tenderness of the nerve trunk distally is not in itself reliable and must not be confused with a similar manifestation found in regeneration.[3] From personal experience the tenderness found in irritation tends to be much more acute and intense than that seen in cases of regeneration.

Partial Division.

This condition is found rarely uncomplicated by irritation or compression.

A point in the history which often proves of some help is the memory of an agonising pain, like a very severe electric shock, striking down the limb at the moment of being wounded. This does not occur commonly in concussion, but there may be such a history in complete anatomical division.

As in the other forms the symptoms at first are profound, and recovery does not commence until a later date than in concussion, generally from 8 to 12 weeks after the reception of the wound. The slighter the laceration, of course, the earlier improvement is likely to occur.

The first sign of recovery is usually seen in the sensory fibres, but if these have been damaged most severely the earliest change will be a return of tone in some of the muscles, followed at a later date by slight voluntary movement.

So far the only helpful points in the differential diagnosis between partial division and concussion have been the history at the moment of injury and the tendency for the more profound symptoms to persist and definite signs of recovery to be delayed in the former.

After about five or six weeks palpation of the nerve at the site of the injury offers further help. In partial division definite and localised tenderness will be discovered, unless no sensory fibres have been injured, and the pain generally radiates distally along the nerve on compression being applied by the finger in this region. This pain is the result of stimulation of the regenerating sensory fibrils which have invaded the surrounding scar and tissues, and is often referred to some part of the anæsthetic skin. When the nerve is fairly superficial the sensitive neuroma may be recognised frequently by palpation, but it must be remembered that a tender and palpable neuroma may be found in complete division.

In partial division the recovery tends to progress more slowly than in concussion. The functional result and extent of recovery in uncomplicated cases of partial division will depend upon the number and type of fibres severed. This can only be judged when all improvement has definitely ceased unless the nerve is explored surgically, a procedure which is clearly inadvisable as long as recovery is maintained and no complication occurs.

Complete Division.

In this lesion the signs of division from the first will remain profound, unless the nerve is sutured.

There is complete paralysis with marked atrophy of all the muscles supplied by the nerve below the injury, and full and persistent loss of conduction in the sensory and sympathetic fibres. The complete loss of tone in the paralysed muscles may be of some diagnostic value, since retention of some tone is frequently found in concussion and compression and occasionally in irritation and partial division.

The sensory dissociation is that of complete interruption —i.e., the anæsthesia to the lightest form of touch is more extensive than the analgesia to pin-prick, and the loss of deep sensibility is extensive in most cases. The sensory loss in compression, irritation, and partial division is apt to vary from time to time, but never in complete division if the examination is accurately performed.

The anæsthetic skin is dry, inelastic, and the surface desquamation delayed. The capillary circulation is sluggish, giving rise to hypothermia, and the area of skin corresponding to the loss of protopathic sensibility is of a deeper red colour than normal, with a cyanotic tinge, but this colour may be obscured by the accumulation of superficial scales. On palpation the dryness and loss of elasticity of the skin are shown in marked contrast with the normal.

The absence of true trophic lesions is of great service in distinguishing complete from incomplete division.

After the elapse of some weeks the bulb on the extremity of the proximal end may be felt, and compression of it cause pain referred to the distal part of the limb, but care must be taken not to interpret this in the absence of any sign of conduction in the motor, sensory, or sympathetic fibres as an indication of partial division.

Electrical Reactions.

No reference has been made previously to electrical reactions, since they do not appear to be of any great service in determining the pathological diagnosis. It has been quite a common experience to find recovery of voluntary power in muscles which fail to respond to faradic stimulation.

My investigations have had to be undertaken without the use of the condenser current, but it seems from the experiences of others to be of assistance in discovering the early recovery of conduction of motor fibres before the return of any voluntary movement.

A comparison of the response to faradic stimulation of the nerve above and below the site of the lesion is useful in estimating the severity of the injury, but retention of irritability in the distal part of its course with loss of conduction at the point of injury does not appear to be an infallible sign of concussion or compression. In simple concussion the faradic response is rarely lost in the muscles.

The surgeon must be familiar with cases which clinically manifest signs of irritation, but at operation the nerve is found to be quite free and no intraneural thickening can be palpated. Direct faradic stimulation of the nerve at the operation will show generally severe obstruction. In such cases where I have been able to examine microscopically excised portions of the nerve an intraneural fibrosis has been found, which, I venture to suggest, is secondary to hæmorrhages from rupture of the vasa nervorum by the divulsive force of the missile as it traverses the structures in the vicinity of the nerve.

Regeneration.

The evidences of regeneration in the various forms of injury have been briefly alluded to, but it is also of importance to be able to recognise correctly early indications of recovery after such operations as suture and neurolysis.

In the former Head, Rivers, and Sherren [4] found a return of cutaneous sensibility to pain commenced early after division and primary suture of a sensory nerve, but from observations in gunshot injuries of mixed nerves it appears that this does not occur at all constantly after *secondary* suture.

From personal observations it seems to be a test of perfect technique and coaptation of the two ends without distortion of the nerve bundles. In large nerve trunks it can be imagined such perfection is difficult to procure, and scarcely to be expected in secondary suture when a considerable portion of the nerve trunk has been excised.

It is found that after secondary suture in gunshot injuries the early signs of recovery appear to vary considerably. In small nerves, and when the ends have been brought into perfect apposition, recovery of protopathic sensibility first seems to be the rule, and with it regeneration of the sympathetic fibres.

An indication which is even easier to discover, and found frequently as early as the sixth week after secondary suture of a mixed nerve, is the subjective sensation of "stinging" in the sensory field of the nerve on palpation of the trunk a little distal to the site of suture.

Care must be taken not to confuse tenderness of the end bulb after an unsatisfactory operation, and when there is any doubt it is preferable to delay giving an opinion until sufficient time has elapsed to see if the stinging can be induced by digital compression of the nerve at a more distal point than at the previous examination. It is very frequently necessary to take this precaution, since in complete division the young fibrils growing out from the proximal end ramify very widely in the surrounding tissues.

Tinel [5] considers this one of the most useful signs of regeneration, but it must be realised that regeneration can occur without the presence of this phenomenon. I have noticed the absence of this sign most frequently after secondary suture of the musculo-spiral (a nerve largely composed of motor fibres), when the functional recovery has been good but there has been no improvement in sensation.

From a series of cases of regeneration without occurrence of this indication it seems fairly clear that its presence is due to slight irritation of the regenerating sensory fibres, and that it is undoubtedly evidence of active regeneration, but only gives definite information about the afferent fibres. The subjective manifestations, as radiating pains, which are fairly frequently complained of whilst regeneration is proceeding, are probably produced in a similar way as a result of compression of the growing fibrils by movement or contraction of adjacent muscles.

Another sign emphasised by Benisty [6] is the appearance of radiating diffuse pain on pinching the skin supplied by the regenerating nerve. This is also a manifestation of regeneration of afferent fibres, and, furthermore, does not appear to be of any great practical value, since its occurrence is irregular, and, as is to be anticipated, its appearance much later than the subjective symptoms produced by palpation of the nerve trunk.

It does not seem possible to formulate any rules about the further signs or rate of recovery after secondary suture, nor is it to be expected when it is realised that so very many factors influence the regeneration.

Not only do the extent of the excised piece of nerve and the perfection of the operative technique affect the recovery, but it has been found also that the various nerves behave in a different manner after suture. The usually highly satisfactory functional result following secondary suture of the musculo-spiral depends probably upon the larger proportion

of motor fibres and the consequent increased possibility of motor bundles in the proximal end coming into relation with degenerate motor bundles in the distal end.

The result of our experience so far seems to point to the fact that nerves can regenerate much more quickly than was anticipated if they are placed under the most favourable circumstances for the correct performance of this function. They are always willing, apparently, to regenerate, but the trouble is to prevent any obstruction to their growth into their normal physiological paths.

After neurolysis, in cases where there is no intraneural complication or serious division of fibres, there is usually a rapid improvement in both motor and sensory fibres, unless the constriction has been very severe, since in the worst forms it may lead to complete local destruction of the whole nerve. The recovery is often first manifested by the motor fibres; but complete recovery, on the other hand, of the sensory fibres is found commonly before function is perfect, the delay in recovery of function being most probably of muscle rather than nervous origin.

The Effect of Ligature of the Principal Arteries.

It is not intended to discuss the well-known ischæmic disabilities which may be mistaken for those of nervous origin, but only to refer to the modification of the clinical picture which the complications of arterial obstruction may produce in injuries of the peripheral nerves.

Ligature of one of the main vessels of the forearm or leg does not appear to have any obvious effect either on the symptomatology or prognosis, but occlusion at a higher level usually exerts some influence, although a fair proportion in which the brachial artery has been ligatured just proximal to the elbow have failed to show any modification of importance which could be ascribed to the arterial complication. This is probably because the patients are chiefly young subjects, free from any arterial disease, and the collateral circulation in this locality is so perfect.

Arterial obstruction in the proximal part of the limb tends to exaggerate the trophic disturbances, but careful examination will show that such symptoms as cyanosis and hypothermia involve the whole hand or foot and do not correspond to the distribution of any peripheral nerve. Trophic sores are more likely to occur, and this predominance of trophic manifestations in nerve injuries complicated by arterial lesions makes the symptoms of irritation often difficult to interpret. It is in these cases that tenderness of the nerve trunk is of special value as evidence of the presence of nerve irritation, since the trophic disturbances cannot be considered with certainty as nervous in origin. The difficulty is intensified in late cases of irritation when secondary vascular changes may supervene as a result of the persistent and long-continued irritation.[7]

Arthritic adhesions and fibrous contractures of the muscles are particularly frequent after ligature of the large arteries in the proximal part of the limbs, as the axillary or femoral, but their widespread distribution rather than localisation to the distribution of any nerve generally suggests their correct etiology.

As can be expected, arterial complications seriously affect the prognosis; occlusion of main vessels almost invariably delays recovery and renders the ultimate result less perfect.

Sources of Error.

The most striking illustrations of the points of importance in the differential diagnosis of the various lesions of the peripheral nerves after gunshot injuries may be seen in brachial plexus cases, where in the same arm signs of concussion, complete division, and irritation may all be manifested.

The signs and symptoms described in this paper have been tested during the past three years, and from this experience it seems possible to formulate an accurate pathological diagnosis in almost 90 per cent. of cases; but it must be fully understood that this cannot be done during the first few weeks after injury, when the manifestations are almost invariably profound.

Error has occurred most frequently from too much reliance being placed on the result of palpation of the nerve. On several occasions partial division has been diagnosed because the nerve trunk distal to the point of injury was tender, although all the other symptoms pointed to complete loss of conduction, and at operation complete anatomical division has been found. Consequently tenderness of the nerve below the lesion *alone* cannot be regarded as a reliable sign of partial division, although it is difficult to understand the phenomenon in complete division unless it is explained by the presence of a communication with an intact nerve below the point of injury.

Another risk of error arises from palpation of the end bulb in complete division, as the referred pain arising from manipulation of it is liable to be interpreted as evidence of incomplete division.

A third point of difficulty arises in cases of severe intraneural sclerosis, where the scar has first caused irritation and later complete obstruction to conduction. If the patient is seen first at the latter time certain signs of irritation may persist, although a thorough investigation will demonstrate that there is really a complete loss of conduction. Furthermore, it has been previously noted that trophic lesions may be maintained by endarteritis, the result of continued nerve irritation.

In conclusion, I desire to express my deepest thanks to the members of the surgical staff of the 2nd Western General Hospital for the assistance they have always so willingly given in ascertaining for me the precise conditions found at operation, and for providing me with excised portions of nerves to make histological examinations.

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REPORTS FROM THE PATHOLOGICAL LABORATORIES

OF NO. —— GENERAL HOSPITAL, ALEXANDRIA.

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Introductory Note.

THE following are a continuation of abridged reports on work done in the Pathological Laboratories of No. —— General Hospital, Alexandria, during the period 1916-17 on the subjects specified and by the respective authors named at the head of each report. Nos. I. and II. were published in THE LANCET of April 20th, 1918.

III.—MACROSCOPIC AND MICROSCOPIC METHODS OF DIAGNOSING AMŒBIC AND BACILLARY DYSENTERY.

By Captain THOMSON and Captain HIRST.

Every stool is sent entire to the laboratory for examination and not a small portion of it. For this purpose a special fly-proof room for the bed-pans is set apart. The examination of the stools macroscopically and microscopically is of great value as an indicator of the condition of the intestine. A clinician with considerable experience who has carefully coördinated his observations with the pathological findings will arrive in nearly every case at a correct diagnosis by this method alone, especially when he combines his experience with the clinical picture of the patient under his charge.

In acute bacillary dysentery we find very frequently a stool with clear mucus like white currant jelly stained with streaks of bright red blood. Often there is no fæcal matter. When examined microscopically the cell picture is composed of numerous pus cells and degenerate epithelial cells often rounded up and showing pyknosis of the nuclear chromatin. The large degenerate cells must not be mistaken for amœbæ.

The choleraic type of bacillary dysentery has quite a different appearance. The stool in these cases is very fluid and may be brown, straw-coloured, or greenish in tint and is filled with flakes of white mucous shreds. The cell picture is again characterised by the large number of pus cells and degenerate epithelial cells in the field of the microscope, and in these cases it is necessary to exclude cholera vibrios.

Another type of bacillary stool is characterised by the presence of small pieces of necrotic mucosa, giving the appearance of minced-up mucous membrane and like meat-

washings. This stool is a very common one in severe epidemics. It shows that considerable damage has occurred and that the mucous membrane is stripping off from the deeper layers of the gut wall.

We have a less common occurrence in acute bacillary dysentery—namely, the passage of casts of portions of the mucosa of the large intestine. We had three such cases here during the year 1916; and in some cases we have large casts of blood passed which simulate true casts of the intestine, but which are composed only of clotted blood and fibrine.

Amœbic dysentery when pure, without secondary infection of dysentery bacilli or atypical organisms, has a very characteristic macroscopic appearance. The mucus is more or less stained dark brown or chocolate colour—that is, the blood is broken down and not the bright red of acute bacillary dysentery. Examined under the microscope, such a stool shows a field very poor in cellular elements, and the red blood cells are mostly broken down. A very common feature of these amœbic stools is the presence of Charcot-Leyden crystals caused by the breaking down of the red cells by the action of the entamœbæ. Charcot-Leyden crystals, although not pathognomonic of amœbic dysentery, are, in our experience, very suggestive of the condition, and we have noted their frequency in cases of cyst carriers with no obvious blood in the stools.

Another characteristic of amœbic dysentery to the naked eye is what is called the "sago-grain" stool, caused by the mucus occurring in little clear masses or clumps mixed with dark stained chocolate-coloured material. The macroscopic diagnosis is definite if entamœbæ are present which show ingested red blood cells.

The above description more or less describes the common conditions met with in cases of amœbic and bacillary dysentery. In chronic cases of dysentery, both bacillary and amœbic, and during recovery from these conditions we find patients continue to pass mucus either in clumps or mixed up with a fluid fæcal stool.

Sometimes this is clear viscid mucus, frequently it is pure pus, and very often the mucus is white, opaque, and very viscid. It may occur as a clump or it may be noted as small flakes on the surface of a solid fæcal mass. Patients who seem otherwise well often have these conditions indicative of some past dysenteric attack, and the condition is popularly known as "colitis." Frequently the cell picture of these cases is comprised chiefly of columnar epithelial cells.

The question arises as to whether many cases of amœbic dysentery are missed by failing to find entamœbæ. We do not think a large percentage are, if the pathologist is experienced in the work, but certainly some cases are missed, especially in cases which are complicated by an acute bacillary dysentery where the amœbic condition is masked owing to the great outpouring of blood and muco-pus. After the bacillary condition has abated these cases may be discovered by a further microscopic examination. The rapid diagnosis of bacillary dysentery is of great importance so that the specific treatment can be administered at once. Willmore and Shearman (1915), working in this hospital, showed that the cell pictures of amœbic and bacillary dysentery were characteristic. A pure amœbic infection has very few cells in the field and pus cells are scarce. In the acute bacillary cases we have a field packed with pus cells, red cells, and degenerate epithelial cells and no entamœbæ present.

The report of this condition is sent at once to the physician in charge with a note that the cell picture is suggestive of bacillary dysentery, and if the case is urgent serum is administered at once, there being no necessity to wait 48 hours for the bacteriological report.

IV.—TYPES OF DYSENTERY BACILLI ISOLATED.

By the same Authors.

During the year 1916 a total of 123 strains of dysentery bacilli were isolated from 331 specimens; Shiga Kruse type 43, Flexner Y type 51, atypical 29, mixed amœbic 19. For the first six months of 1917 the corresponding figures are 51 strains, 406 specimens; 8 Shiga Kruse, 14 Flexner Y type, 29 atypical, and 2 mixed amœbic.

Nearly all the specimens plated for diagnosis during 1916 were acute type, blood and mucus stools. For various reasons a large proportion of the acute stools were not plated during the earlier part of 1916, the distinction between bacillary and amœbic dysentery being made on the basis of the microscopical examination and clinical picture of the case.

During the first half of 1917 a greatly increased number of the fæcal stools of convalescent dysentery patients have been examined. Thus only 67 out of the total were acute type stools, and 37 subacute, and 302 fæcal. Twenty-two strains were isolated from the blood and mucus acute type stools, 18 from the subacute, 11 from the fæcal type.

Since the present register of dysentery bacilli was started on Sept. 1st, 1916, 115 strains have been isolated from 104 cases by one of us (L. F. H.).

The same organisms have been isolated on six separate occasions from one case; in several instances on a second occasion during a relapse. In one case an atypical Shiga type organism was isolated during the first attack, and a typical Flexner bacillus eight weeks later. A typical agglutinating Shiga and a typical Flexner were isolated from one case on successive days from the same attack.

As a rule it was only practicable to put one of the provisional positive glucose tubes through all the tests; if more of these had been examined, doubtless more cases of mixed bacillary infection would have been discovered.

Table I. summarises the characters of the first 100 strains isolated from as many soldiers. Thus, there were 29 strains of typical *B. dysenteriæ* (Shiga) and 32 strains of *B. dysenteriæ* (Flexner) and 39 atypical strains. Representative strains of each of the types isolated have been kept alive by subculture for five months after being first replated to ensure purity; the fermentation reactions and agglutinability were then re-tested.

TABLE I.—*Showing the Characters of 100 Strains Isolated from the Same Number of Soldiers.*

Type No.	Total Nos. of each strain.	Principal biochemical characters: Motility.	Lactose.	Glucose.	Mannite.	Maltose.	Saccharose.	Dulcite.	Indol.	Shiga serum.	Y serum.	Remarks.	Species group.
1	29	—	—	⊥	—	—	—	—	±	—	+	Highly pathogenic.	Shiga.
2	6	—	—	⊥	—	—	—	—	±	—	—	Similar to above, but relatively inagglutinable.	
3	9	—	—	⊥	⊥	—	—	—	+ to ++	—	+	Pathogenic Hiss Y type.	Flexner.
4	23	—	—	⊥	⊥	⊥	—	—	+ to ++	—	+	Pathogenic Flexner type.	
5	8	—	—	⊥	⊥	—	—	—	+	—	—	Inagglutinable variety of Type 3?	
6	10	—	—	⊥	⊥	⊥	—	—	+ to ++	—	—	Ditto, Type 4?	
7	3	—	⊥	⊥	⊥	⊥	—	—	+	—	—	Pathogenic Ohno Type M.	
8	8	—	—	⊥	—	—	—	—	+ + +	—	—	Slightly pathogenic.	Morgan.
9	2	—	—	A.sl.g	—	—	—	—	+ + +	—	—	" "	
10	2	+	—	⊥	—	—	—	—	+ + +	—	—	" "	
11	—	+	—	A.G.	—	—	—	—	+ + +	—	—	Morgan No. 1.	

The sign ⊥ = Acid only. A.sl.g. = Acid and slight gas formation. "Pathogenic" = Lethal to rabbits on intravenous or intraperitoneal injection of living organisms with lesions of the intestine.

Class I.—Shiga group.—The sugar reactions proved to be stable. There is some tendency to vary in the indol reaction, which is never marked and often absent. All but three of the Type 1 strain agglutinated rapidly and completely with the Shiga serum; these three agglutinated in 24 hours.

The Type 2 strains did not become agglutinable on subculture. Strain 99 was agglutinated by 1/50 of the patients' serum on fifteenth day of disease. Strain 98 was not so agglutinated; these latter strains were not agglutinated by the therapeutic serum in a higher dilution than 1/20.

Class II.—Flexner group.—Types 3 and 4 differ only in their action on maltose. They were agglutinated practically to the same titre by the Y serum. According to Hiss, the Y bacillus does not ferment maltose, while the true Flexner type does. Moreover, the production of indol is commonly stated to be greater in the Flexner species. Morgan, however, describes the Y bacillus as a maltose fermenter.

We have found, in common with several other observers, that the fermentation of maltose by organisms agglutinating

Flexner Y serum is variable. It is sometimes possible to select non-maltose fermenting and late maltose fermenters from different colonies of the same strain. The indol reaction is given by all strains to a variable extent, but usually more definitely than by Class I. strain. Moreover, we have found a few strains, such as No. 93, Goodenough, which have a distinct action on saccharose after prolonged incubation. The same remarks as regards maltose also apply to types 5 and 6.

The organisms in these latter types may be divided into two groups: those which become more or less agglutinable to the Y serum after repeated subculture *in vitro*, and those which remain inagglutinable. On the whole, the latter are more often found in acute cases than the former.

The case of a dysentery carrier, 2 AM. O'B., attached to Flying Corps, acting as mess cook, deserves to be recorded in detail. Early in March, 1917, a small outbreak of mild bacillary dysentery occurred in a certain camp near Alexandria; the above-mentioned individual fell under suspicion as a possible carrier of the infection. On March 9th, 1917, a specimen of fæces was forwarded to the Military Laboratory, Alexandria, and reported on as follows:—"Dysentery bacilli (atypical) isolated, Lamblia cysts present." He was then admitted to this hospital. He complained of no symptoms, seldom suffered from diarrhœa; a little mucus was occasionally seen, but more often the fæces were apparently normal.

B. dysenteriæ Type 5 was isolated on 20/3/17, 5/5/17, 10/5/17.

No dysentery bacilli isolated 25/4/17. On 12/5/17 he received 100 c.c. antidysenteric serum intravenously. *B. dysenteriæ* Type 5 was again isolated 27/5/17, 30/5/17, and 5/6/17. Provisionally positive colonies were nearly always numerous on the plate. Negative again 18/6/17.

Strain No. 72 (A.) and Strain 73 (C.) isolated 20/3/17 from two cases of mild bacillary dysentery from the same camp were precisely similar in their character to O'B.'s strains. On 4/6/17 O'B.'s serum gave a good agglutination in a dilution of 1 in 400 against one of his strains. Strains No. 72 and 73 were agglutinated to 1 in 200 and 1 in 400 respectively. *B. dysenteriæ* Flexner was feebly agglutinated 1/50 dilution.

The effect of Y serum on No. 88 (O'B.) was of particular interest. Cultures from four colonies were tested, one was agglutinated up to half titre of the serum, three others to 1 in 10 only. The colonies therefore vary considerably in their agglutinability to the specific serum, the average being low.

On the other hand, Strain 101 (O'B.), though otherwise identical with No. 88, was scarcely agglutinated at all by the Y serum, but was agglutinated to 1/100 by Lister therapeutic serum. Strain No. 101 was injected intravenously into the ear vein of a rabbit. Dose 1/8th agar slope culture in saline. The rabbit died during the eighteenth hour. The intestines were full of slightly blood-stained mucus and intensely congested. The organism was recovered without difficulty from the mucus contents of the intestine and found to be inagglutinable to Y serum.

In addition to being a persistent carrier of dysentery bacilli and a temporary carrier of *Lamblia intestinalis*, the man was also infected with the cysts of *E. histolytica*, which were found on 28/3/17 and 26/3/17. He was treated with 36 gr. of emetine bismuth iodide and subsequently gave six negatives to cysts of *E. histolytica*, the last being on 17/6/17.

The following is a typical example of a microscopic report on a stool while carrying dysentery bacilli only.

17/4/17.—Formed stool; a few specks of mucus on the surface. No cysts. Degenerated epithelial cells present.

The case of O'B. is a notable addition to the records of persistent carriers of dysentery bacilli.

The association between relative inagglutinability of the strains isolated and the clinical mildness of the case is of considerable interest. One of us met with a similar phenomenon during an outbreak of Asiatic cholera at Colombo. At one stage of the epidemic the cases became milder with a lower case mortality. The vibrios became morphologically less typical and less agglutinable with the specific serum used. During a brief recrudescence the organisms again became typical and the case mortality again rose. The Lister Institute therapeutic serum usually agglutinates the types 5 and 6, but in much lower dilution than types 4 and 5.

Similar organisms to type 7 have been isolated by Ohno in Japan and by Bahr in Fiji. The acidity was in each case distinct by the third day, and in the case of Strain No. 75 (Partington) in 24 hours. We understand that this type has also been isolated by Captain Mackie in Egypt.

Strain No. 75 was agglutinated by the patient's serum to 1/100, and also by the Lister Institute polyvalent serum in a dilution of 1/50.

The mannite-fermenting group of dysentery bacilli are to be regarded as somewhat variable members of a closely related species group. By employing a greater variety of carbohydrates and incubating for longer periods and by means of saturation and bacteriolytic tests it would doubtless be possible to separate our strains into further types. Ohno has described 15 types of dysentery bacilli on the basis of the fermentation reactions in lactose, saccharose, mannite, maltose, and dextrine, nine of which belong to the mannite-fermenting group. The work of Hiss, Morgan, Ohno, and others showed that there is a close relation between the fermentation reactions and the receptor mechanisms of these bacteria. It is doubtful, however, to what extent some of the minor differences, such as the late fermentation of maltose and saccharose, are sufficiently stable to be considered specific. Evidence of the instability of some of the fermentation reactions of this group is accumulating. The most constant reactions are those which appear earliest.

Lentz has pointed out that two factors are involved in the reaction produced by dysentery bacilli in broth containing carbohydrates, the acid formation from the splitting of carbohydrates and the alkali formation from the splitting of proteid, and the results are influenced by the constitution of the media used in these tests. We think that the distinction between Hiss Y bacillus and the ordinary Flexner type is largely artificial. It would have been interesting to test some of these strains with the serum of animals immunised to the El Tor bacillus of Willmore. We think it probable that on the basis of the early sugar reactions and cross immunisation experiments our mannite-fermenting strains could be split up into two or three fairly distinct species.

Class III.—Morgan group.—Strains similar to types 8, 9, 10 have been isolated by other bacteriologists in the same endemic area.

The amount of gas formed by different cultures of type 9 is variable; this type is probably closely related to type 8. They differ from the typical Morgan No. 1 bacillus in being non-motile and having apparently a greater pathogenicity to rabbits and guinea-pigs. All the strains in this group gave a marked indol reaction.

Typical Morgan No. 1 bacilli have frequently been isolated from dysenteric stools at different stages of the disease, but particularly during convalescence, and also from the stools of enteric convalescents. Tribondeau and Zichet considered Morgan's bacillus to be an important etiological factor in the dysentery outbreak on the Gallipoli Peninsula. On two occasions we have found the typical organism present in such large numbers in a blood and mucus stool as to suggest that it was the original infecting organism. It seems probable, however, that the closely allied organisms already mentioned play a more important part in the etiology of dysentery. Most of the organisms belonging to the Morgan group were isolated in September and October, 1916.

We look forward to the publication of the researches now in progress in another laboratory in Alexandria on the pathogenicity of the organisms in this group.

Anomalous Strains.

Strain No. 60 (P.), isolated 28/12/16 from a blood and mucus stool from an acute case, was anomalous in not conforming to any of the tabulated types. There were numerous colonies of this organism on the plate. Unfortunately, the culture was found to be dead on subculture three weeks after its first isolation. The following are the characters of the first subculture: non-motile bacillus, lactose acid only, glucose acid only, mannite no change, maltose acid only, saccharose no change, dulcite no change after three days at 37° C., indol reaction slightly positive. No agglutination in 1/10 titre of either Shiga or Y serum.

Table II. shows the kind of stools from which the various organisms were isolated:—

TABLE II.

Type No.	Acute stool.	Sub-acute.	Fæcal	Total No.	Type No.	Acute stool	Sub-acute.	Fæcal	Total No.
1	28	1	—	29	5 & 6 ...	8	6	4	18
2	1	5	—	6	7	1	2	—	3
3 & 4 ...	23	6	3	32	8, 9, & 10	7	4	1	12

The stools are classified as before. It will be noted that the agglutinating Shiga type is more constantly associated with the acute type of blood and mucus stool containing cellular exudate than the corresponding Flexner type. The single strain found in a subacute type of stool was one of the three which did not agglutinate well.

As suggested by these figures, the non-agglutinating Flexner and Shiga types are those most commonly isolated from mild cases of bacillary dysentery. This accords with the experience of the physicians in charge of the cases. The probability is that the actual proportion of non-agglutinating atypicals is greater than would appear from these figures, since the chances of isolating them from the subacute and fæcal type of stool are less. Captain Fisher states that

on the whole good results were obtained with the polyvalent serum in the treatment of cases in which only atypical strains were isolated. A large proportion of the types 2, 5, and 6 infections did not require serum treatment. Nevertheless, in view of the low agglutinability of some of the atypical strains recovered from acute cases to the therapeutic serum it would seem that the serum is not sufficiently polyvalent.

Nearly all the cases of bacillary dysentery came from the same endemic area—namely, camps in the vicinity of the hospital. There is some evidence of a seasonal variation in the different types of bacilli isolated. The small outbreak in March, 1917, already mentioned, bred true to type—i.e., all the cases were infected with the same type of organism, presumably through the agency of a carrier. Nevertheless, as a general rule, typical Shigas, typical Flexners, and various atypical organisms could be isolated from cases from the same camp at all seasons, though in different proportions. This is probably to be accounted for by the simultaneous spread of the different types through the agency of flies feeding on a variety of fæcal matter deposited by natives in the neighbourhood of the camp.

In Japan, in the Philippines, in the Fiji Islands, and other localities a similar diversity of species has been described. On the other hand, most local epidemics in Germany and in English asylums are attributed to some particular species of dysentery bacillus, and stress is laid on human carriers as a means of spreading the virus.

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V.—AMŒBIC DYSENTERY.

By Captain THOMSON.

Acute Amœbic Dysentery.

During the year 1916 a total of 666 specimens of fæces from separate cases contained blood or mucus, or both. Of these 97 cases were found to contain free living *E. histolytica* diagnosed chiefly by the presence of ingested red blood cells.

Out of the total acute cases of dysentery examined in the laboratory, 14·5 per cent. proved to be amœbic. Of these, 19 were diagnosed bacteriologically and microscopically to be mixed infections—that is, both amœbic and bacillary. Nine more cases were diagnosed as a double infection on clinical grounds, making a total of 28 mixed cases. I think it very probable that several cases of mixed infection were missed during the acute attacks of bacillary dysentery, especially when the amœbic infection was slight.

Only three deaths occurred in which an amœbic infection was active. One of these had the complication of enteric fever; another had an acute bacillary infection, and one died from a perforated amœbic ulcer about 10 inches above the anus. Of these deaths, therefore, only one could be attributed to the action of the amœbæ alone—that is, the death-rate in pure amœbic cases in this hospital during the year was approximately 1 per cent. amongst amœbic cases and only 0·15 per cent. of the total cases of dysentery. No deaths occurred from amœbic abscess of the liver, and only one case of amœbic abscess was treated surgically.

This low death-rate in amœbic dysentery can be attributed to two things: (1) That amœbic dysentery is often not very virulent; (2) the specific treatment we possess in emetine and ipecacuanha.

During the Gallipoli campaign, before emetine was sent to the base and before the drug was administered early, most extensive lesions of the large intestines were often seen by us in the post-mortem room, which proved in sections of the gut to be amœbic. These were often complicated by secondary infections, causing destruction of the whole mucosa right down to the muscular layer and in many cases right down to the peritoneum, and perforations were not uncommon. The observations made during the original outbreak of dysentery on the Gallipoli Peninsula prove conclusively that amœbic dysentery was an important factor in causing many fatal cases, and the necessity of prompt treatment with emetine in all suspected cases was advocated and carried out. The death-rate fell in a remarkable manner as soon as emetine was introduced into the base hospitals and hospital ships.

The explanation of the various results obtained by treatment is to be found by the study of the pathology of the intestine during dysentery. In mixed cases of dysentery—that is, both amœbic and bacillary—we find that the bacillary condition causes an acute congestion of the whole capillary system of the large intestine, extensive submucous hæmorrhages occur, and thus the circulation to the gut is cut off. In these cases it is quite impossible for any emetine injected hypodermically to reach the amœbæ buried in the submucosa. It is first necessary to cure the bacillary condition and to restore the circulation in the intestinal mucosa. Again, in more chronic cases of active amœbic dysentery—that is, in cases persistent for some time with the passage of free entamœbæ in the stools, we often have a considerable amount of fibrous tissue formation, and, consequently, we have the amœbæ shut off from the circulation. In these cases it may be impossible or difficult to reach the amœbæ either by circulation or by the mouth. We know these pathological changes in the intestine exist in varying degrees depending upon the acuteness or chronicity of the condition.

Certainly the best results in treating acute amœbic dysentery are obtained at the first onset of the acute attack. Administer emetine hypodermically and orally and so attack the amœbæ before they are shut off either from the circulation or the lumen of the gut by fibrous tissue formation or damage to the capillary blood-supply.

If the first course of treatment fails we must, after an interval, recommence treatment, and in our experience very few cases will fail to respond to the action of emetine when given hypodermically and by the mouth.

Chronic Amœbic Dysentery Diagnosed by the Presence of the Cysts of Entamœba histolytica.

Out of a total of 1785 cases examined the pathogenic cysts of *E. histolytica* were found by me in 2·4 per cent. Wenyon and O'Connor (1916), in Alexandria, found cysts in 3·2 per cent. of hospital cases examined, and in 5·3 per cent. of healthy British troops in Egypt.

These observers also found that 13·7 per cent. of native prisoners in Hadra were carriers of amœbic dysentery. The cysts of *E. histolytica* are characterised by the presence of four nuclei, and, as shown by James, Penfold, Woodcock, Wenyon and O'Connor (1917), and Dobell and Jepps (1917), they varied much in size.

Dobell and Jepps give the diameter as varying between 7μ and 20μ. The paper by Dobell and Jepps is a most useful contribution to the diagnosis of the three common intestinal entamœbæ in man.

I have found most commonly in my cases here sizes between 10 μ and 15 μ in diameter. Some of these cases give no history of ever having had acute dysentery, and many never even complained of diarrhœa. All cases had spent several months in Egypt, and several gave distinct histories of dysentery and the passage of blood and mucus. Others came from Salonika, Mesopotamia, India, or had been through the Gallipoli campaign. In the series of 42 cases received here we find that none had been treated with emetine, but several had received injections of serum and been treated as acute bacillary dysentery. It seems to me quite certain that when a patient is a carrier of the cysts of *E. histolytica* there must be some ulcerative process in the gut. Wenyon and O'Connor (1917) are of the same opinion. In the post-mortem room during the last two years I have noticed the presence of amœbic ulcers of the large intestines where no dysentery was suspected, and in many of the cases examined by me where the stool was found apparently normal and where numerous pathogenic cysts were present I have found microscopically Charcot-Leyden crystals, a certain indication of the presence of broken-down blood corpuscles. We have, as it were, in all cases of cyst carriers of the pathogenic entamœbæ an occult condition of ulceration which does not make itself always obvious microscopically.

A cyst carrier may continue healthy and well for years, but nevertheless he is a danger to himself and the community, especially in badly sanitated areas.

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FRACTURES OF THE FEMUR:

A PRACTICAL NOTE ON THE CALLIPER AS AN INSTRUMENT OF EXTENSION.

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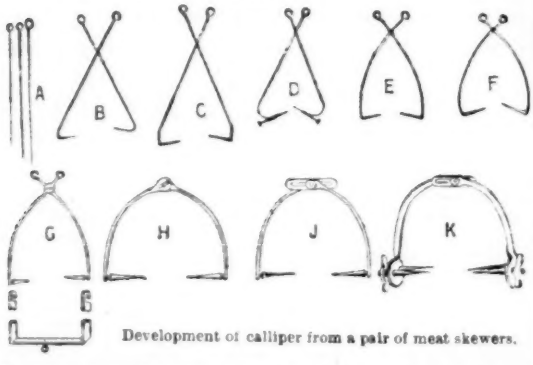
THE treatment of fractures of the femur has received considerable attention of late. A large number of mechanical appliances have been devised, the majority of which may be swept aside as ingenious toys, too elaborate and expensive for everyday use. Moreover, the best results can be obtained with very simple apparatus, properly applied.

Extension and Immobilisation.

Extension and immobilisation are fixed principles that nobody disputes, but there is considerable difference of opinion as to how extension is to be made and maintained, and how much immobilisation includes. All methods of extension come under two heads: the so-called "fixed" extension, and extension by counter-weight.

The Thomas splint is used in large numbers both in France and at home, but in a variety of ways, and many of them are certainly not acting on the Thomas principle—which, of course, is that the ring is pressed against the ischial tuberosity and the leg tied to the other end of the splint as forcibly as can be done, this being the true fixed extension.

FIG. I.



Development of calliper from a pair of meat skewers.

In many cases shown as examples of this method the bed is raised at the foot, the splint tied to a post at end of bed, and the ring is found an inch or two away from the pelvis; extension is therefore really being made by the body weight pulling away from the fixed limb, practically the Hodgen principle. The objection to this method is that the patient can ease the pull, if it is uncomfortable, by working himself along the bed.

Another way of using the Thomas splint is to suspend the limb in it, using it merely as a cradle and fixing the limb extension to an independent post, or making extension by pulley and counter-weight, the bed foot being raised in the usual way. An objection to this method is that the whole limb is used for extension purposes, and therefore the knee is kept continuously in one position.

This brings up the question as to how much immobilisation includes. The older text-books lay it down as a rule that when possible the joints above and below the fracture should be included in the fixation. This practice is still being largely adhered to and has the disadvantage that convalescence is prolonged by the time necessary to restore mobility to the knee-joint.

I described in THE LANCET of Feb. 23rd, 1918, a splint which permits of passive movement of the knee-joint while maintaining extension of the thigh, practically a Hodgen with a second frame for the leg, hinged to the thigh frame at the knee level. The same leg-piece can be hinged into a Thomas if preferred, and this method has given very satisfactory results.

Where possible, then, the mechanical treatment of a fractured thigh should include fixation of the thigh with freedom of the knee and leg. This leads to a consideration of the best way of obtaining a hold of the thigh for purposes of fixation and extension. Essentially there are but two methods: in the one the pull is taken from the limb surface by some adhesive applied to the skin; in the other a direct hold is obtained on the bone by some instrument.

There can be no question that the latter is the more efficient, and comparing the number of cases I have seen of skin infection, abscess, deep sloughing, and occasionally gangrene following the use of strapping and glue, with the number of cases with sepsis following the use of instrumental extension, I have no hesitation at all in saying that the instrument is infinitely safer—and if further argument is needed patients who have been subjected to both invariably decide against the adhesives.

FIG. II.

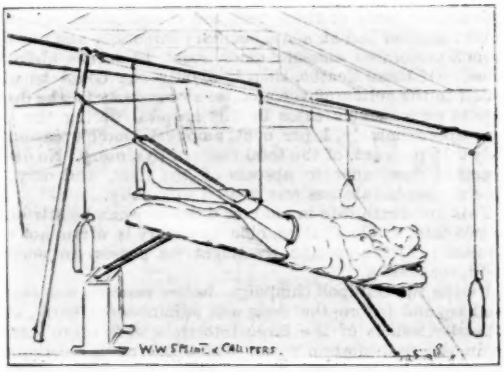
Unnecessary penetration of points of calliper before modification.

Account of Use of Calliper.

One of the most recent instruments is that devised by Major Besley, of the U.S. Army, and called by him the "ice-tongs" or calliper. For simplicity of application and minimum injury to bone it seems superior to other instruments, while giving absolute precision of control over the fracture. I have used this instrument for some considerable time, and have introduced some modifications which have met with Major Besley's approval, and therefore I hope they may be worth describing.

The development of the Besley calliper from a pair of meat skewers to the instrument known by that name is shown in the top row of Fig. I. The points are inserted a short distance into the condyles of the femur and the pull taken from the rings at the other extremity. It is obvious that the heavier the pull the more the points would be driven into the bone, not infrequently to the extent shown in Fig. II.—a quite unnecessary injury to the bone; and therefore the first modification was the substitution of a screw-joint for the simple rivet (Fig. I. G).

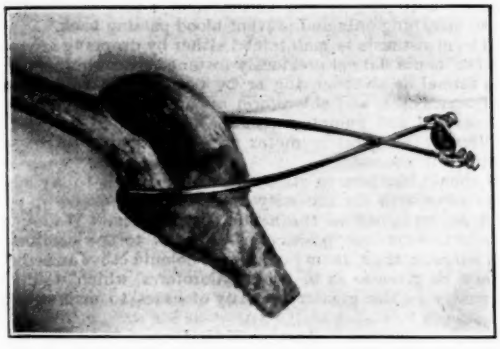
FIG. III.



Splint and callipers in use, with extension on Hodgen principle.

Both the calliper and extension cord attached are in the way if free movement of the knee-joint is desired; the pull was therefore shifted to the pins and taken by a rigid metal frame long enough to extend beyond the foot, which permits of the foot passing up inside it (Fig. III.). The short arms with ring ends are therefore unnecessary (Fig. I. B).

FIG. IV.

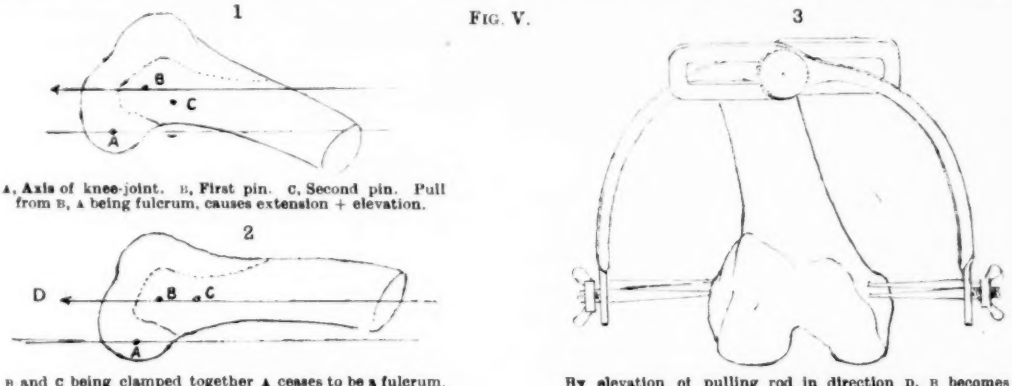


Knee-joint distended with paraffin to show available surface for callipers. (Specimen and photograph by Major Besley.)

The body of the calliper can then lie on either the thigh or leg, but if moved from one position to the other causes pain, which is due to the fact that the area to the axis of the joint, which is such that no matter what spot is chosen for the insertion of the calliper point a lever action is produced, with the knee axis as fulcrum, the result being that with a short lower fragment a certain and unavoidable amount of elevation is produced, apart from the extension. As in nearly every case the lower fragment is depressed, this is beneficial, but the action will continue indefinitely and produce hyper-elevation unless checked by the reduction of the amount of pull or alteration in its direction. Another alternative is to arrange a pull on the leg by strapping or foot-piece, and lessen the pull on the thigh, balancing the one against the other. This, of course, at once interferes with the freedom of the knee. The diagrammatic outlines of skiagrams in Fig. VI. are a sample of this frequent over-correction.

In order to obviate the necessity for readjustment I have devised a calliper with two points on each side instead of one (Fig. I. K). Both, of course, are inserted into the bone, but at first the pull is taken from one only, that nearest the knee; the ordinary lever action operates and the fragment is elevated. When alignment is judged correct the screw nut is tightened on each side, and then the pull is taken from both pins, the lever action is arrested, or—more correctly—altered, as the first pin becomes the fulcrum, and further pull results in maintaining extension only. Fig. V. illustrates this perhaps more clearly than words can describe it. This last pattern has not been given

FIG. V.



A, Axis of knee-joint. B, First pin. C, Second pin. Pull from B, A being fulcrum, causes extension + elevation.

B and C being clamped together A ceases to be a fulcrum. Pull from C through B = extension only.

By elevation of pulling rod in direction D, B becomes fulcrum and hyper-elevation is corrected.

two pins are hardly ever in one straight line, as shown in the Fig. I. G; at any other position of width they are, of course, at an angle as in the top row figures, and therefore, when moved on their axis, cause pressure on the bone. To obviate this the hinge-joint was expanded laterally (Fig. I. J), so that at any width the pins are in one line.

Fig. III. shows this instrument in position, with the metal extension frame and the modified Hodgen splint, which differs from that shown in the previous article in THE LANCET to the extent that the thigh frame is lengthened to correspond to the other, and, for the same reason, to allow the foot to pass through to full extension of the knee. As shown in the figure, a counter-weight is arranged to balance the weight of the leg in such a position that the patient can control it and so produce passive movement of the knee at will.

This arrangement is comfortable for the patient and permits him a reasonable amount of movement without disturbance of the fracture, gives ready access to wounds, and can be placed in any degree of abduction required. I have heard of callipers remaining *in situ* for seven and eight weeks, but in my experience three to five weeks is sufficient in the average case. After that time, when some active movement is not only permissible but desirable, a simple weight extension attached to foot or leg, with no splint at all, is the best arrangement, the patient being taught to put the different muscles into action against the pull of the weight.

Fractures of Lower Third of Femur.

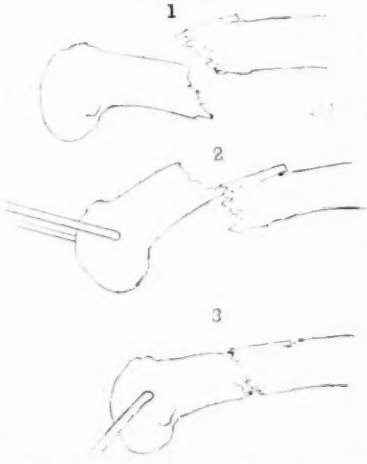
There is one other point of interest in the use of the calliper, which was not apparent when it was originally devised, and that is the treatment of lower third fractures. The method of application is simplicity itself, the only point of importance being avoidance of the synovial membrane.

Fig. IV. is a photograph of a specimen prepared by Major Besley to show the area of bone available and its relation to the joint; and Fig. V. shows the relation of the available

sufficient trial to warrant its being offered as more than a suggestion.

The single-point sliding-joint calliper with metal extension frame is made by Messrs. Down Bros. and has been accepted by the War Office, and made for me, so presumably it can be obtained in the usual way by others who may wish to use it. I am greatly indebted to Major Munro, R.E., and to Captain Hill, R.E., for their skill and interest in the making of these appliances and other surgical requisites, and particularly so considering the limited apparatus and labour at their disposal in France. My acknowledgments and thanks are due to Major Besley for allowing me to sketch his instruments and to publish this description of them and for accepting so cordially the small modifications I have suggested.

FIG. VI.



1. Original displacement. 2. Extension + hyper-elevation. 3. Corrected alignment.

ETHER ANÆSTHESIA FOR FACE AND JAW SURGERY.

BY J. C. CLAYTON, M.R.C.S., L.R.C.P. LOND.,

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AFTER six months' experience at the Queen's Hospital for Face and Jaw Injuries, during which time I have administered 400 anæsthetics for minor and preparatory operations and 100 for actual plastic operations, I should like to supplement a most able article published in THE LANCET by my colleague, Lieutenant R. Wade.[1]

In that article Lieutenant Wade dealt most fully with various techniques for various operations, including intratracheal, intubation, colonic ether, and a special sitting-up position; but whereas he is satisfied with the free use of chloroform in combination with ether, I personally feel convinced that, just as in general surgery, chloroform should as far as possible be eliminated in favour of ether.

Consequently, I have been at pains to work out different methods of sustaining an ether anæsthesia to meet the various operations required. Owing to the ether at present supplied not being, in my opinion, as effectual as it should be, I find that induction with ether alone is in the majority of cases very difficult, and in some cases impracticable, especially as the depth of the induction has to be sufficient to admit of a change over to one of the special methods, so that I have reluctantly to use a mixture of 1 part of chloroform to 11 parts of ether, which mixture I have so far found very satisfactory.

Description of Method.

I use a dropper, a Schimmelbusch mask covered with a double layer of well-washed house flannel and a face-pad of several layers of bath towel. I also have a preliminary intramuscular injection of morphia, gr. ¼, and atropine, gr. 1/100, given half an hour beforehand.

Following induction, for all cases in which there is any likelihood of blood accumulating in the mouth, such as lip

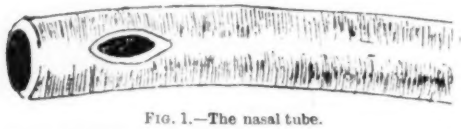

FIG. 1.—The nasal tube.

plastics, epithelial inlays inside the mouth, antral and submental drainage, and extensive extractions of teeth, I use a single nasal tube, the largest which I can pass down one nostril, having a small hole cut at the side close to the tip, and the edges of the tip trimmed. (Fig. 1.) This tube is connected to a tube of larger calibre, a most important point, this larger tube being further connected with an enamelled funnel of about 4 in. in

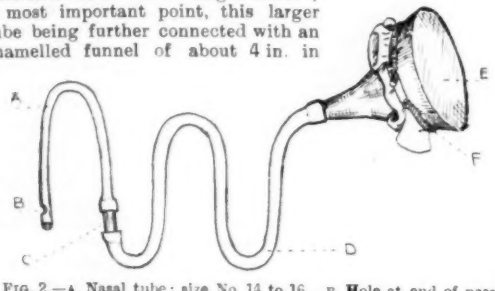

FIG. 2.—A, Nasal tube; size No. 14 to 16. B, Hole at end of nasal tube; C, Large metal connector. D, Tube; size No. 20. E, 4 in. funnel covered with house flannel. F, Rubber band.

diameter, and it is again important that the diameter of the spout of the funnel is no smaller than that of the tube attached. (Fig. 2.)

By holding the funnel to the ear and adjusting the nasal tube one finds the point, which is somewhere just above the epiglottis, at which the breathing is comfortable. Then open the mouth and pack the back of it with gauze (about 2 ft. cut off a 10 in. roll will be sufficient); this will establish nose-breathing only and prevent blood passing back.

The anæsthesia is maintained either by dropping ether on to the house flannel previously fastened over the mouth of the funnel by a rubber ring or by passing the tube from a Shipway's ether and chloroform apparatus through a hole in the flannel and pumping with a Fletcher's foot bellows, or preferably an electric motor pump, or using an oxygen cylinder if necessary.

I should like here to state that this method, to my mind, does away with the necessity of the extreme sitting-up position, as explained in the article by Lieutenant Wade; but should this extreme position be essential to the comfort of the surgeon, then, in my opinion, a colonic ether anæsthetic should be given so as to avoid chloroform, which would be necessary in the greater majority of cases to maintain the anæsthesia.

Another Method.

A method in such cases as plastics on the nose, eye, or cheek, or in fact where there is no likelihood of blood entering the mouth—and among these cases may also be included both septal and antral cases where a post-nasal plug is used—is one where a Hewitt's airway tube as

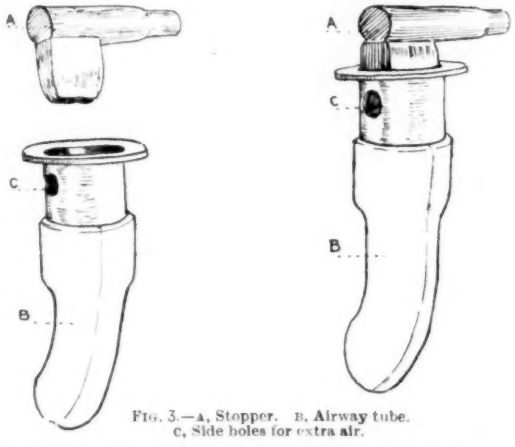

FIG. 3.—A, Stopper. B, Airway tube. C, Side holes for extra air.

modified by Phillips is used. I use this tube because it is at present the only one which I can get supplied, but not necessarily from preference. This tube has a hole through each side of the metal portion, and I have had a hollow stopper made to fit the mouth of the airway tube in connexion with a horizontal tube, actually an empty rifle cartridge case, the free end of the stopper being graduated so as to leave the two side-holes patent to act as respiratory vents, and still keep a large ether way. (Fig. 3.)

The horizontal tube can be turned either to the right or left as required, and is attached by tubing either directly to the Shipway's apparatus or to the enamelled funnel as described above. I frequently find that when attached directly with the Shipway's apparatus an automatic inhalation of ether is set up sufficient to keep the patient comfortably anæsthetised without any pumping.

I do not wish to suggest that these methods take the place of intratracheal ether, but will be found useful substitutes, especially when the injury prevents a good opening of the jaws.

With regard to intratracheal, intubation, and colonic ether anæsthesia, I cannot say more than has been said in Lieutenant Wade's article, except that in colonic ether we are finding that the results are just as good without using hyoscine in the hypodermic injection.

[1] THE LANCET, June 8th, 1918, p. 794.

LITERARY INTELLIGENCE.—New editions of the following books are announced by Messrs. J. and A. Churchill: "Surgery in War," by Lieutenant-Colonel A. J. Hull, R.A.M.C., second edition; "A Text-book of Pharmacology and Therapeutics," by Professor A. R. Cushny, F.R.S., seventh edition; "Diseases of the Eye," by J. Herbert Parsons, F.R.C.S., third edition.

TRANSFUSION OF BLOOD IN WAR SURGERY:

SOME INDICATIONS AND RESULTS, AND DESCRIPTION OF NEW MODIFIED DIRECT METHOD.

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THE indications for transfusion of blood in war surgery are: (1) anæmia, caused by (*a*) loss of blood, (*b*) prolonged sepsis; (2) retarded healing of wounds, including compound fractures.

Anæmia.

Severe loss of blood may occur at the time a soldier is wounded or within a day or two afterwards, and then due to the return of blood pressure removing blood clot, &c. Transfusion of these primary hæmorrhage cases is beneficial immediately and permanently, so long as the blood of the donor is suitable and the "wound" shock not too great. Some transfusion enthusiasts claim a great deal for it in surgical shock; still, when we consider what we know of the pathology of shock, we must not expect too much of transfused blood in these cases. Often the accompanying manipulation and exposure of these cases do more harm than the transfusion does good, if any, unless the anæmia is extreme.

Hæmorrhage may occur after sepsis is well established in a wound, usually six to eight days after receipt of wound, or after an amputation for sepsis. These cases were very common at the "Base" in the early part of the war, and are liable to occur even now. These men cannot stand the loss of blood, not even a few ounces. Transfusion, either after they have had a secondary hæmorrhage or before severe operations, such as amputation, has been instrumental in saving many lives. It replaces the blood that has been, or is going to be, lost, and I am sure prevents "shock" in some degree. Also it often makes a necessary operation possible in an otherwise hopeless case.

Prolonged sepsis.—There is another large class of case in which transfusion is becoming more popular every day, and that is in prolonged sepsis. In nearly all cases of severe septic wounds there comes a time when the patient's resistance becomes exhausted. His wounds have an "indolent" appearance, and healing is slow or absent; he has loss of appetite, and has no "kick" left in him. These cases are always profoundly anæmic. The coagulability of the blood is diminished, there is œdema of the back and legs, and often pus in the urine.

There are many types of this picture I have tried to describe, from the case of a slowly healing stump to the case of pyæmia. From my own observation over many months I find that they are all improved by a suitable transfusion, the severe cases temporarily, the mild cases permanently. Until lately transfusion has only been used in almost hopeless cases, or rather not employed until they were almost hopeless. I believe that the injected blood is directly stimulating to the tissues, so that I advise it to be used early in the case, before the body has lost its power of reaction.

There are now being recorded many cases of "prolonged sepsis" which clinically appear to be septicæmic, and which become well either with or without transfusion. My own observation goes to show that all these cases improve by transfusion so long as the donor's blood is properly examined in conjunction with that of the recipient. It is therefore probable that the donor's blood contains antibodies which may affect the life of the micro-organism probably present in the recipient's blood. It is conceivable that this process might be carried out more effectively by a preliminary vaccination of the donor with autogenous vaccine prepared from the recipient, if the organism can be recovered and the septicæmic recipient does not succumb in the interval necessary for such antibodies to be produced in the donor.

In primary hæmorrhage the most satisfactory amount of blood to use appears to be from 750 to 800 c.cm. given at one transfusion. In septic cases smaller amounts are indicated, 300 to 500 c.cm. repeated in 7 to 10 days, using a fresh donor each time. Donors under the age of 25 seem to stand the withdrawal of blood very well, and after a few hours feel quite fit again.

Retarded Healing of Wounds.

"Indolent" wounds.—These so-called "indolent" wounds have usually large raw surfaces, with no, or very anæmic, granulations upon them, and they show no sign of healing, the skin edges often being blue and lustreless. In the early part of the case there has been much discharge, and there has of necessity been a heavy drain upon the patient's fluid blood. There is no reaction in the wound. There may be no increase of temperature, but as a rule the pulse-rate is still rather high. Stimulating dressings do no good; some, such as saline, often cause troublesome hæmorrhagic oozing, which has a deleterious effect upon the patient. Non-healing stumps may be mentioned as one of the most common types in this category. Repeated blood transfusion of, say, 400 c cm. at ten-day intervals, is most beneficial.

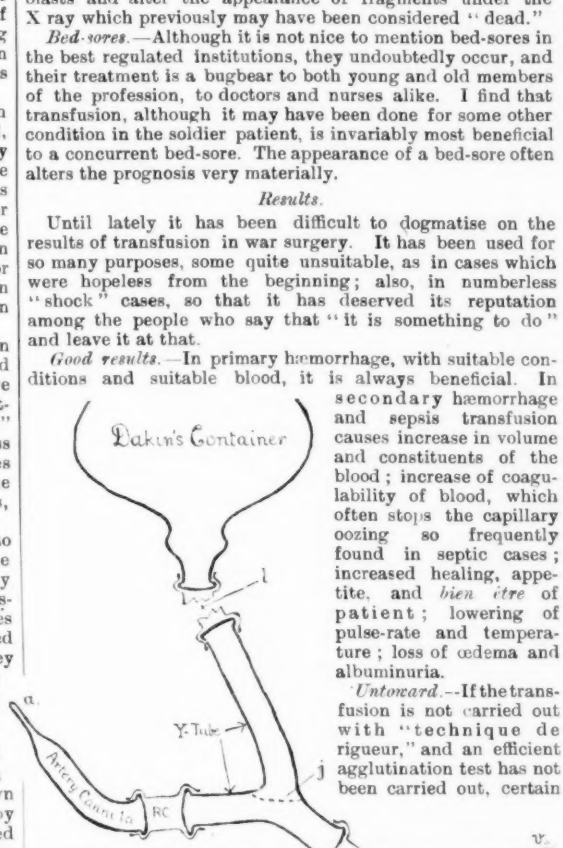
Compound fractures.—The same remarks as have been made about "indolent" wounds are applicable to septic compound fractures, especially those of the femur. There is no doubt that in long-standing cases, where the suppurative process continues in a "watery" manner and there is persistent non-union and no attempt on the part of the patient to react to the infection or throw out new bone, repeated small transfusions increase the production of osteoblasts and alter the appearance of fragments under the X ray which previously may have been considered "dead."

Bed-sores.—Although it is not nice to mention bed-sores in the best regulated institutions, they undoubtedly occur, and their treatment is a bugbear to both young and old members of the profession, to doctors and nurses alike. I find that transfusion, although it may have been done for some other condition in the soldier patient, is invariably most beneficial to a concurrent bed-sore. The appearance of a bed-sore often alters the prognosis very materially.

Results.

Until lately it has been difficult to dogmatise on the results of transfusion in war surgery. It has been used for so many purposes, some quite unsuitable, as in cases which were hopeless from the beginning; also, in numberless "shock" cases, so that it has deserved its reputation among the people who say that "it is something to do" and leave it at that.

Good results.—In primary hæmorrhage, with suitable conditions and suitable blood, it is always beneficial. In secondary hæmorrhage and sepsis transfusion causes increase in volume and constituents of the blood; increase of coagulability of blood, which often stops the capillary oozing so frequently found in septic cases; increased healing, appetite, and *bien être* of patient; lowering of pulse-rate and temperature; loss of œdema and albuminuria.



Scheme of Apparatus for Modified Direct Transfusion. Drawn to one-half scale.

Untoward.—If the transfusion is not carried out with "technique de rigueur," and an efficient agglutination test has not been carried out, certain alarming or even fatal results may take place. Immediate: hæmolysis, agglutination, possibly causing sudden death; cyanosis, with feeble pulse, possibly caused by giving too large a volume of blood when the heart muscle is degenerated from sepsis. Later: sweating, rigors, pyrexia, apparently found more frequently after giving citrated blood; hæmaturia.

Modified Direct Method.

The rationale of this method is to convey blood from an artery of the donor to a vein of the recipient and allow the operator to observe the flow, so that he knows immediately if the flow should cease or if any clotting is taking place.

The apparatus is very simply "home made." It consists of a Y-tube (see figure), two limbs of which are shortened, and two glass cannulæ. These cannulæ are connected to the short limbs of the Y-tube by sterilised rubber tubing (R C); the third limb is connected (*l*) with a reservoir of saline 0·8 per cent. or sodium citrate 3·8 per cent. by tubing about 5 feet long, which has a clip on it. All rubber connexions are conveniently tied with silk. The length of the instrument—that is, the distance the blood must flow through the tube, is about 6 inches. The diameters are: of tip of artery cannula (*a*) 1 mm. internal and 2 mm. external; of vein cannula (*v*) 2 mm. internal and 3 mm. external; of Y-tube cannula 6 mm.

The Y-tube and cannulæ are waxed after sterilisation and joined up in position with rubber tubing which has been duly sterilised. The long limb of the Y-tube is now connected to the reservoir of sodium citrate solution and the apparatus is ready for use.

The operation is as follows:—

The donor's left radial artery is usually taken (unless he is left-handed), the distance between artery and the selected vein in recipient is roughly measured off with instrument, and the two arms secured in position with adhesive. Two operators are necessary: one to prepare the artery and one to prepare the vein.

The skin over the proposed wound is sterilised with 1-20 carbolic, which also acts as an anæsthetic. The radial artery 1½ inches above wrist is dissected out through an inch incision, tied off distally with fine silk, a second loop of which is passed under the artery and used later to tie in the cannula. The artery is now opened with a Graefe's knife from above downwards and outwards, leaving a V-shaped tongue. Pressure in the meantime is applied above the wound to prevent loss of blood.

The vein is prepared in the same way. The clip on the tubing leading to the reservoir is now opened, and the apparatus filled with citrate. The artery cannula is now tied into artery and blood allowed to flow until it reaches the tip of vein cannula, when pressure is again applied to artery. The vein cannula is then tied into vein and all pressure taken off artery. The blood can now easily be seen flowing through the Y-tube at the junction of the short and long limbs where the clean solution of citrate comes in contact with the blood (*j* in figure). This can be more easily demonstrated by occasionally opening the clip on the tube to reservoir, which is suspended about 3 feet above the patient, when the clear solution is seen passing quickly into the vein cannula. This is even more pronounced if pressure is applied to the artery.

At the termination of the operation the cannulæ are withdrawn after pressure has been applied above each wound, both vessels ligated, and skin sutured.

I have not seen any untoward results from tying off the radial artery, although some members of the profession appear to consider the procedure unjustifiable. The anastomosis round the wrist has never been embarrassed in my experience. Care must be taken not to cut branches of the radial nerve. I made a rough calculation as to the amount of blood which passes through the apparatus by running the blood from the radial into a dish containing citrate, the mixture being subsequently transfused. In six men, with average arteries and blood pressure, the amount worked out at 750 c.cm. of blood in five minutes.

Although the method is quick and requires little apparatus and I have never known clotting to take place, yet I do not consider it has many advantages over some of the indirect methods for general use.

Conclusion.

Since the early part of 1916, when I first used this method, there has been such an extensive literature upon blood transfusion in war surgery that it is unnecessary to touch upon the relative advantages of the various methods advocated. I consider that transfusion has a large field of usefulness in war surgery; that whenever possible "whole" blood should be used, as all the constituents of the blood are necessary, especially in septic and septicæmic cases; that a preliminary agglutination test should always be carried out, except when the groups of donor and recipient are known; and that the "Dakin container" indirect method is the most simple and efficient method for general use, as the apparatus is easily made or obtainable, the required amount of blood can be given at one filling, and little assistance is required, also whole warm, unadulterated blood, with little chance of infection, is quickly transferred from one patient to another. Of course, the method selected must necessarily vary according to circumstances of location and available apparatus.

Reference.—O. H. Robertson, Captain, M.O.R.C., U.S.A., British Medical Journal, June 22nd, 1918.

ABNORMAL CONDITIONS OF ENAMEL IN CASES OF MALNUTRITION.

BY J. LAWSON DICK, M.D. EDIN., F.R.C.S. ENG.,
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APART from caries there are many abnormalities to be found in the enamel of the teeth in cases of malnutrition. If 100 good-class children are compared with 100 poorly-fed, ill-nourished children, even a casual inspection will show that the teeth of the poorly-fed children are much more defective than those of the better-fed ones.

The study of defects in the enamel is a matter of much interest and importance, for there is, as it were, a permanent record in many cases of the state of the child's nutrition at various periods of life. The calcification of the enamel begins about the fifth month of intra-uterine life, and the following diagrams give the rate of progress of calcification at various periods for both the temporary and the permanent sets.

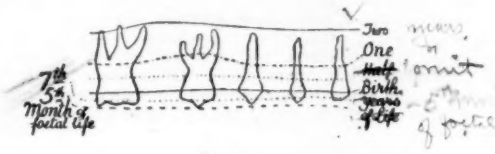


FIG. 1.

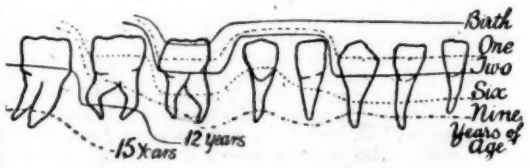


FIG. 2.

It is extremely rare to find the cutting edge of the incisors and canines of the milk teeth with imperfect enamel, and it will be seen that this enamel is laid down or calcified during the last four months of intra-uterine life. On the other hand, it is quite common to find the enamel of the cutting edge of the same teeth of the permanent set markedly defective. This enamel is laid down in the first year of extra-uterine life. In other words, in almost all cases during intra-uterine life the calcification of the enamel proceeds normally, but immediately after birth factors step in which interfere with the proper growth of the enamel, producing defects which are permanent and which are likely to weaken the defences of the teeth and to lead to decay. The agents which determine the tendency to decay are those which affect the soft enamel organ in the earliest history of the tooth and not those which affect the enamel after the tooth has been erupted.

Results of Investigation.

403 children of 11 years of age and over were taken from the ordinary London County Council schools, but of these 281 were children in schools where the nutrition was distinctly below the average. No attempt was made to select children of poor nutrition beyond that they belonged to a poor school and lived under slum conditions in the East-End of London in a poor and overcrowded neighbourhood. As a control 122 children were taken from good-class schools in North London, where the social conditions were fairly good and where the general state of nutrition was good. The following were the figures:—

(A) 403 children. (B) 281 where nutrition was decidedly poor.
(C) 122 children of good nutrition.

	(A)	(B)	(C)
Enamel normal ...	273 cases = 67·5%	... 167 = 60%	... 106 = 87%
,, defective ...	130 ,, = 32·5%	... 114 = 40%	... 16 = 13%

Carious conditions have not been dealt with in these figures. The conditions of the enamel met with in these cases may be summarised as follows:—

1. *Typical hypoplasia.*—As already noted,[1] in these cases the enamel of the teeth is markedly defective, so that the

[1] The Teeth in Rickets, Proceedings Royal Soc. Medicine, 1916, ix., 83-89.

dentine is but thinly and unequally covered. The cutting edges may present sharp points, giving a very characteristic appearance. The defect usually extends from the cutting edge, and may, in severe cases, involve the whole crown. The teeth affected are the central and lateral incisors, the tips of the canines, and the crowns of the first molars of the permanent dentition. Usually the depth of the defect is greater in the enamel of the central incisors than of the lateral incisors, and the enamel as a rule affected is the enamel laid down in the first two years of the child's life. This condition is almost pathognomonic of rickets.

2. *Honeycombed teeth.*—This condition is much the same as the first, except that the deficiency in the enamel leads to the formation of small depressed pits scattered over the surface of the teeth, giving a very characteristic appearance.

3. *Horizontal bands of thickened enamel and transverse grooves in the enamel*, indicating acute illnesses of a more or less prolonged nature. Short acute illnesses seem less likely to produce this condition than prolonged debilitating conditions such as measles, especially when followed by whooping-cough.

4. *Chalky appearance of the enamel*, varying from white patches or transverse bands on the surface of the enamel to a general opacity affecting its whole surface. This is a very well-marked defect, and the contrast which this condition gives with the clear semi-transparency of healthy enamel is one of the chief things that strike the observer in the teeth of poorly nourished children. As will be seen, it is the commonest defect found in malnutrition.

5. *Brown lines of Retzius* or brown staining of the enamel is a common and well-marked defect found in cases of malnutrition. This defect may be found as a brown line running as a rule across the incisors, and it may be the canines or it may be a brown patch of varying size and intensity of colouring, though it is usually a rusty brown. Very commonly it is associated with marked opacity of the enamel, and it seems to indicate a somewhat severe degree of disturbance of the nutrition.

Placing the frequency of occurrence in the poor-class and the better-class children side by side, the following is the result given in percentages:—

	In 281 poor-class children.	In 122 good-class children.
Opaque chalky enamel	28·5%	9%
Brown line of Retzius	13·0%	1 case.
Hypoplasia	8·5%	5%
Honeycombed teeth	2·5%	0

As already shown, out of 281 poor children, 114, or 40 per cent., had defective enamel, as compared with 13 per cent. amongst the better-class children. Taking the 114 cases with defective enamel among the poorer-class children there was found—

Chalky enamel	80 = 70%	Typical hypoplasia ...	24 = 21%
Brown lines of Retzius	38 = 33%	Honeycombed teeth...	7 = 6%

It is of great importance to note the teeth most commonly affected. In the children where the enamel was opaque and chalky the teeth were affected in the following order of frequency.

Central incisors...	78%	Premolars	20%
Lateral incisors...	55%	First molars	10%
Canines	30%	Second molars	5%

These figures are accurate except in the case of the first and second molars. The first molars were frequently badly decayed or the tooth had been extracted. The second molars in many of these cases had not yet been erupted.

In 38 cases when the teeth showed the brown lines of Retzius—

Central incisors affected in	36=96%	Canines affected in	5=13%
Lateral ,, ,,	11=29%	First molars, 1 case.	

It is important to note that in hypoplasia and in cases where the chalky patches and the brown lines of Retzius were found the teeth which suffered chiefly were, first, the central incisors; secondly, the lateral incisors; and, thirdly, the canines in this order of frequency. Reference to the diagram will show that the calcification of the enamel of the crowns of these teeth goes on during the first two years of the child's life. So that these defects are due to errors of nutrition affecting the child at this early period when the rate of growth, and notably that of the brain, is relatively enormous. Rickety conditions are especially operative at this period. Hypoplasia, as we have seen, affects the incisors, canines, and first molars. Much more rarely the premolars and the second molars are affected by hypoplastic changes. White patches in the enamel, one of the commonest signs of malnutrition, are, however, fairly commonly found in the premolars and second molars, which must be due to conditions operating on the child between the second and the sixth year.

ANGINA PECTORIS:

CHANGES IN ELECTROCARDIOGRAM DURING PAROXYSM.

BY GUY BOUSFIELD, M.B., B.S. LOND.,
LIEUTENANT, R.A.F.

THE accompanying curves were taken from a patient who had aortic disease. There was an old history of syphilis, scarlet fever, and several attacks of rheumatism. The typical diastolic murmur and water-hammer pulse were present.

As I was about to photograph the first lead the patient had an attack of angina pectoris, to seizures of which he had been subject. Having hastily sent for amyl nitrite capsules, I felt justified in proceeding with the cardiogram until the remedy arrived. Under these conditions Plate 1 was taken. Plate 2 was obtained from the same patient when the attack had completely subsided.

FIG. 1.

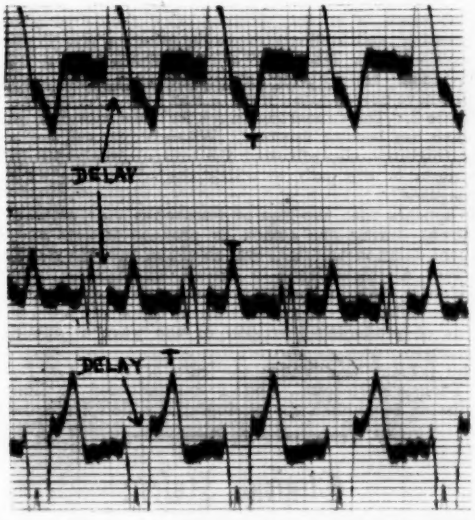
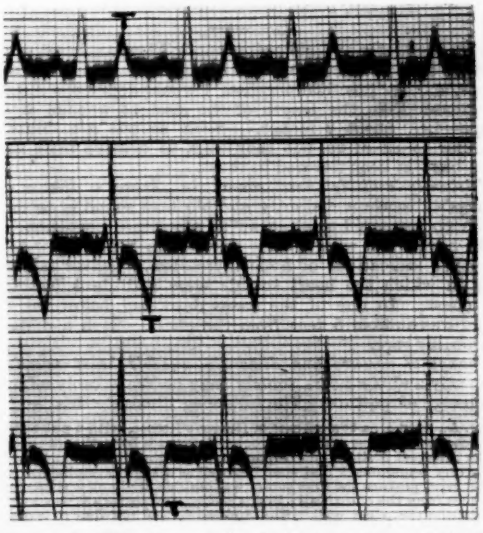


FIG. 2.



Curves in Plate 1 are quite typical of those obtained in severe cases of aortic disease, showing marked delay in the transmission of the nervous impulse through the right branch of the auriculo-ventricular bundle. It is quite clear,

however, that some factor other than the aortic lesion was concerned in the production of this delay; this is shown by the fact that when the anginal attack had subsided no delay in the nervous transmission occurred. (See Plate 2.)

Severe aortic disease is known to be associated with high intraventricular pressure. One of the theories of the causation of angina is that the attack is due to vaso-motor spasm, and the resulting increase of peripheral resistance raises the general blood pressure, and consequently the intraventricular pressure. The above curve would appear to confirm this in a measure, for the patient was not thoroughly "at home" in the cardiograph room, and fear of the unknown was probably sufficient to produce the rise of blood pressure which precipitated the attack. Clearly, as the second plate shows, the aortic lesion alone was not responsible for the delay in the bundle, for here, when the seizure had passed, the nervous disturbance also vanished.

But there is another feature of the records which is interesting and difficult of explanation. The T wave is always erect in lead 2 of a cardiogram from a healthy individual. Here, during an attack of angina pectoris which might have proved fatal, wave T was *erect*. Compare lead 2 of Plate 2. The dangerous attack had now subsided, yet the T wave has become *inverted*. Whatever caused the attack was, therefore, also affecting the musculature at the base of the aorta or the path by which the stimulating wave was propagated.

It appears that the rise of intraventricular pressure was sufficient during the attack to produce distress and consequent delay in the right branch of the auriculo-ventricular bundle. All three leads in Plate 1 demonstrate this delay excellently. Again, the disturbance was sufficient to cause a profound effect on the musculature at the aortic base, to the extent of producing inversion of the wave T due to its contraction.

The patient was under the care of Dr. C. R. Box in St. Thomas's Hospital, and I am indebted to him for permission to publish the photographs which I obtained.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

DISTANTLY AUDIBLE HEART SOUNDS.

BY W. GORDON, M.D. CANTAB., F.R.C.P. LOND.,
PHYSICIAN, ROYAL DEVON AND EXETER HOSPITAL.

BY "distantly audible heart sounds" I mean heart sounds audible at a distance from the chest wall without a stethoscope, and, for practical purposes, I would define the distance as greater than the length of the straight wooden stethoscope—i.e., about 7 inches. Such sounds are doubtless familiar to all of us, but they seem to deserve more study than has yet been devoted to them.

Distantly audible first sound in Graves's disease.—In Graves's disease a distantly audible first sound is common, much commoner, I think, than in any other condition. So often have I met with it that now, when I notice it, I look for other indications of hyperthyroidism. Graves related a case in which the heart sounds were audible 4 feet from the chest. In one of the cases described below the first sound was audible 5 feet from the chest. Such a distance is probably rare.

Change of posture and distantly audible heart sounds.—Distantly audible heart sounds may be remarkably affected by change of posture. The following illustrate this:—

Mrs. A., aged 31, a typical case of Graves's disease, with a pulse of 120, and a cardiac dullness reaching 6 inches leftwards from the mid-sternal line in the erect position (corresponding with the limit of the h.a.b.), had a very pronounced first sound as well as a slight systolic murmur. In the erect posture the first sound was audible without a stethoscope 19 inches from the chest wall; in the recumbent posture it was audible 5 feet from the chest wall. The difference was not due to exertion during change of posture, because the change was quietly made, and when the erect position was resumed the distance of audibility again decreased. My friend Dr. J. Raglan Thomas confirmed these measurements.

Mr. B., aged 28, with a heart dullness almost normal in area in the erect position, a short presystolic apical murmur and a basal aortic diastolic, had a very marked apical first sound. This first sound was audible without a stethoscope 14 inches from the chest wall in the erect position. In the recumbent position it could be heard 30 inches from the chest wall.

These changes in distantly audible heart sounds, so obvious and with limits of audibility so easily measured, furnish a valuable (because incontestable) addition to what has been so repeatedly reported in respect of the influence of bodily posture on cardiac physical signs. They furnish further proof, if such be needed, of the contention that no description of cardiac physical signs is scientifically accurate which omits a statement of the bodily posture at the time of observation. Heart sounds are rather out of fashion just now and, a little while ago, the shade of Laennec might have been excused for some discouragement. However, as aortic regurgitation and mitral stenosis have happily been rediscovered, it may be worth while continuing to describe heart sounds.

It is good to notice that descriptions of cardiac conditions are beginning to appear in which the posture of observation is stated. Perhaps the observers, like Laennec and Graves, have used the more accurate straight wooden stethoscope.

A CASE OF PROLONGED ARTIFICIAL FEEDING.

BY J. BATTY TUKE, M.D., F.R.C.P. EDIN.,
NEW SAUGHTON HALL, POLTON, MIDLOTHIAN.

THE following case of artificial feeding is interesting on account of the duration of treatment.

A woman, aged 57, single, was admitted on August 24th, 1908. History: For five years has been suffering from delusions of a religious nature and hallucinations of hearing—e.g., imagines that she is the Bride of Christ, and gets direct messages from Him, telling her to perform certain actions which she is bound to obey. In consequence of one of these messages she set fire to the house she was living in before being brought here. Up till August 29th, 1909, she took her food fairly well, though somewhat erratically, one day taking nothing but solids, the next nothing but fluids; on this day, however, she received a message from Christ commanding her not to take food or drink of any kind, and up to present date (September, 1918) not even a drop of water has voluntarily passed her lips. For the past nine years she has been fed regularly three times a day by the mouth with a feeding-tube, being perfectly quiescent during the operation. When the artificial feeding was first commenced she weighed 6 st.; this rose in two months to 6 st. 7 lb., and since then it has never varied more than a pound or two up or down. Her bodily health is, and always has been, absolutely good; she has never had a day's illness, has been out regularly, and employs her time in the house reading, writing, and doing useful and fancy sewing.

To all appearances the patient may, if she has not already done so, create a record for the duration of continuous artificial feeding.

A CASE OF ACUTE ASCENDING PARALYSIS.

BY W. WADDELL, M.B., CH.B. EDIN.

IN the following case the past history was unimportant, with the exception of an attack of measles at the age of nine.

The patient was a woman, aged 28. At 3 P.M., on April 18th, she began to feel pains in the back and head and tingling in both legs. When seen at 8 P.M. on the same day there was definite weakness in both legs; the left leg, the patient stated, became weak first. The power of standing was lost. Knee-jerks were absent. The patient was perspiring freely. The following morning, at 10 A.M., there was complete paralysis of both legs, with relaxation of the muscles. At 3 P.M. on the 19th there was paralysis of the muscles of the pelvis, loins, abdomen, and weakness in the muscles of the thorax and those of right forearm and hand. There was tenderness of muscles, a firm touch could be perceived anywhere, but perception of painful impressions and of heat and cold was delayed. Cutaneous reflex action was lost. There was no wasting of muscles, and the electrical reactions were unimpaired. Temperature 98·2° F. Pulse 78.

There was mental dullness, and later in the day absolute paralysis of the muscles of the thorax, both arms, and diaphragm; the neck muscles had also begun to suffer. Speech became indistinct, and the patient soon passed into a state of stupor and died at 5 A.M. on the 20th.

The muscles, nerves, and spinal cord appeared on naked-eye examination to be free from disease. There were degenerative changes in the cells of the anterior cornua, with slight vascular engorgement.

Umtata, Cape Province, South Africa.

THE Devon County Council have arranged for the provision of a home for mentally defective boys at Exmouth.

THE Council of Bristol University is offering to the general public during the coming winter free courses of instruction in English literature, chemistry, and geology.

Reviews and Notices of Books.

Thyroid and Thymus. By ANDRÉ CROTTI, M.D., F.A.C.S., LL.D. With 96 illustrations and 33 plates in colours. Philadelphia and New York: Lea and Febiger. 1918. Pp. 567. Price $10.

To the publishers of this large work we offer our congratulations. The book is a beautiful specimen of the typographic art, the paper and binding are of the best, and the execution and reproduction of the coloured illustrations, which are numerous, call for special praise. It is, indeed, an édition de luxe, and few authors have had the good fortune to have their writings presented to the reading public in such an attractive way. The author states that the work is the result of 17 years' experience in the field of goitre pathology in Switzerland and the United States, and expresses his indebtedness to Professor Henry Stilling, of Lausanne, to whom he owes much encouragement and self-confidence, and to Professor Theodor Kocher, who has given him inspiration and example. He also states that, in addition to personal experience in the study of the thyroid and thymus glands, he has gathered all that he considers of value from the enormous amount of French, Italian, German, and English literature on the subject, and that he has endeavoured in his recital of sources and authorities to give credit where credit is due.

From the title-page we learn that the author was formerly professor of clinical surgery and associate professor of anatomy at Ohio State University College of Medicine, and surgeon to Grant and Children's Hospitals, Columbus, Ohio. We may conclude that his personal experience has been more surgical than medical, and that what he has to say about the surgical aspect of diseases of the thyroid and thymus will be the more valuable part of the book. About one-fifth of the book is devoted to the consideration of operative methods and technique, and most of the illustrations and coloured plates are connected with this part of the subject. Indeed, the medical part of the book, although occupying four-fifths of its pages, appears to have been written chiefly to lead up to the subject of surgical treatment. It is difficult to understand what the author means when he says that he has endeavoured in his recital of names and authorities to give credit where credit is due. The book, indeed, bristles with names, but references to published writings are conspicuous by their absence. The absence of references, of a bibliography, and of an index of names is one of the greatest defects of the book. When an author is quoted no clue is given as to the work from which the quotation is made. What is worse, we find whole passages literally translated from Professor Ewald's well-known monograph incorporated in the text without any acknowledgment at all. When names are given they are not always correct; thus, we find Perry for Parry, Madden for Hadden, Hutchinson for Hutchison, Schöefer for Schäfer, Buscham for Buschan, Fomeris for Forneris, &c.

The introductory chapters on anatomy, physiology, and biological chemistry of the thyroid and pathology of thyroid tumours are, on the whole, adequate. It is incorrectly stated, however, that "normally the human thyroid gland contains 1 to 9 grams of thyreoglobulin," corresponding to 5 to 45 mg. of iodine. The actual amount is from 2 to 8 mg.

"Everyone knows," says the author, "Halstead's classical experiment: If a portion of the thyroid is removed, the remaining portion of the gland reacts by secondary hypertrophy." In a treatise published in 1918, the fact should have been mentioned that in 1914 Halstead published a paper entitled "Reconsideration of the Question of Experimental Hypertrophy of the Thyroid Gland," stating that his former experiments had been fallacious. Hunnicott in the same year published a paper demonstrating the absence of hyperplasia of the remainder of the thyroid in dogs after piecemeal removal of this gland. In spite of this the author, not only here but elsewhere in the book, refers to Halstead's old experiment, as if it were still an accepted fact and draws conclusions from it on that supposition.

The chapter on inflammations of the thyroid is an interesting one. We may remark that it was at the commencement of the nineteenth century, not in the eighteenth as the author states, that descriptions of thyroiditis were first given by Carron, Walther, and others. In the description of woody thyroiditis we notice a good many unnecessary repetitions, and there is a tendency to repetition throughout the book. Here we read: "It was Riedel who in 1896 first described a form of thyroiditis which he called 'eisenharte strumitis' or 'iron-hard strumitis.'" "On account of the extremely hard consistence of the tumour Riedel called it 'eisenharte strumitis.'" "This form of thyroiditis called by Riedel 'eisenharte strumitis' or iron-hard strumitis." "The tumour is absolutely hard like iron or wood, hence its name." The term does not call for such insistence.

The so-called parasitic thyroiditis of Chagas is described. In this disease the enlargement of the thyroid does not appear to be the main part of the illness. We think its relation to chronic goitre to be very doubtful. A naïve remark is made regarding hydatid cyst of the thyroid: "Clinically the diagnosis of hydatid cyst is seldom made, as the only symptom pathognomonic of its presence—namely, the 'hydatid fremitus,' has never been perceived."

The author has given a good account of the anatomico-pathological relations of goitre to the surrounding structures. Chapter VI. and the succeeding chapters on the various forms of goitre and their clinical symptoms are well written; in this section of the book the author is at his best. Here we come across a curious remark: "A great many goitres in their early stage give to the neck a soft roundness called 'swan-neck.'" The subject of myxœdema is started in the middle of a chapter on the clinical aspect of malignant goitres, and is continued along with that of cretinism in the three following chapters. Whether the author has himself seen little or nothing of myxœdema and cretinism we are unable to say, but he gives what seems to us a very poor and inadequate description of these most interesting diseases. Although there are 96 illustrations in the book there is not a typical picture given either of myxœdema or cretinism. True, there is an illustration on p. 199 labelled "Spontaneous adult hypothyroidism," but it shows nothing in the least characteristic of myxœdema, and might be more appropriately labelled "Portrait of a lady." The illustration on p. 204 labelled "Spontaneous infantile hypothyroidism," as far as we can see, shows nothing but obesity. The author is sometimes unconsciously humorous, as when he says: "The hands and feet are thick and clumsy; the fingers have the shape of small round sausages; hence the name 'spade hands' of Gull." A chapter on thyroid insufficiency serves to illustrate the danger of seeing the condition in almost every person. The author gives as symptoms in children lack of appetite and constipation, but admits subsequently that it would be an error to claim that every constipation is due to thyroid insufficiency! There is next a long and interesting chapter on the etiology of endemic goitre and cretinism, which is supplied by the author's wife. The antiquated and third-hand information, however, regarding the prevalence of goitre in America on p. 225 is not what one expects to find in an up-to-date treatise published in the United States. In the chapter on the medical treatment of goitre it is stated that Coindet first used iodine in 1829. Coindet's work appeared in 1820 and he began the use of iodine in 1819. The author says: "We may say that the medical treatment of simple goitre is contained in this one word iodin." These are exactly the words of Ewald: "Die medikamentöse Behandlung der Struma lässt sich in ein Wort zusammenfassen: Jod." The thyroid treatment of myxœdema is an interesting chapter in the history of therapeutics, but all the author has to say about its evolution is that "after a long period of experiments and trials it is now universally admitted that the ingestion method is the easiest and most effective treatment in thyroid insufficiency."

The section of the book dealing with the medical aspect of exophthalmic goitre occupies 127 pages, but although so much space is covered there is no account given of the morbid anatomy of the disease except as it affects the thyroid. The relation of enlargement of the thymus to the disease, however, is mentioned on p. 392. The description of the symptoms of this extremely interesting disease shows little evidence of personal clinical knowledge on the part of the author. With regard to tremor, the author says: "According to Sattler, who went over the literature of the subject very carefully, tremor is present in 9 per cent. of all the cases of Basedow's disease." No comment is made on this

strange statement, although it has been already stated that tremor is one of the cardinal features of the disease. In the account of the nervous and mental symptoms we read: "They may enter into the most paroxystic fits of rage; some live in a state of perpetual anger. They quarrel with their most intimate friends. Their love for their own relatives becomes less and less. A great number of these patients are divorced or separated women, and some of them are simply abandoned by their husbands." Further on we read: "Not so infrequently the exophthalmic goitre will terminate by an acute delirium. It takes several nurses to hold him in bed. He talks incoherently about his occupation or profession. If he is a farmer he may be talking about pitching hay; if he is a lawyer about defending a suit; and if a housekeeper about some feature of housekeeping." We have never heard even of cases like these, and we are informed by probably the best known specialist in this country that, as far as he knew, none of his patients suffering from exophthalmic goitre had been divorced or separated.

There is a chapter on "the etiology of Graves disease," the conclusion of which is that "Graves disease is a form of toxic thyroiditis," and then we come to the important question of treatment and whether it is to be medical or surgical. Into this question Professor Crotti enters at some length. He is all for operation. The two points for consideration, it seems to us, are: (1) Is it safe, and (2) does it cure. We ourselves are coming to the conclusion that operations can be safely done under local anæsthesia and expert surgical technique. We find that patients are benefited in various degrees, but that the degree of benefit obtained depends on the amount of gland left being just enough and not too much. The long lists of cures which are again and again put forward by some surgeons are of little value. Only time will show how far patients are capable of being cured by operation

The remainder of the book is concerned mainly with surgical technique. Professor Crotti favours resection in preference to excision or enucleation, and calls it the method of choice. He seems to think that excision, the complete removal of one lobe, has been more or less abandoned as exposing too easily to injury the inferior laryngeal nerves and parathyroids, and that for the same reason enucleation or intracapsular excision should be discarded. The author seems to us to have too great a fear of the consequences of damaging the parathyroids. He says gravely: "Not very long ago saw one of our foremost surgeons, when performing this intracapsular excision, come in contact with a parathyroid, crush it with a hemostat, and become aware of it only when his attention was called to it by one of his assistants." The sequel of this catastrophe is not mentioned, and we should be indeed surprised if anything untoward happened. With regard to ligature of the thyroid arteries as a method of treatment of Graves's disease, we should have thought most surgeons had by this time realised its futility. It had its vogue, but its vogue is passed. If an operation is done at all, it should be removal of thyroid tissue. Time is simply wasted by performing ligature operations. As for sympathectomy, that is surely only of historical interest in relation to diseases of the thyroid. The author advocates, and we think rightly, the use of local anæsthesia in operating on cases of thyrotoxic goitres, but we do not think the cause of local anæsthesia will be forwarded by his reference to "the yells, cries, and sometimes the insults which the patient pours out on the surgeon who is endeavouring to do his best," which, he adds, "are very trying to the nervous system of the operator." Professor Crotti's experiences have been peculiar, and we can only conclude that local anæsthesia has been very imperfectly carried out in such cases. This conclusion is confirmed when we read the description of the author's method for producing local anæsthesia. He advises the use of a 2 c.cm. syringe with a fine needle for injection! The chapter on local anæsthesia is strangely behind present-day technique. It usually requires about 200 c.cm. of solution to produce adequate local anæsthesia in a thyroid operation. How with a 2 c.cm. syringe to introduce this amount of fluid subcutaneously may be left to the reader's imagination.

The last chapters of the book deal with the thymus gland, and only occupy 23 pages out of 558. There is not, indeed, a great deal to be said about thymus diseases, and what is said is sufficient as regards present-day knowledge. There is one remarkable statement made on p. 555 to which we must draw attention. The author there says that during the past few years he has been removing the thymus in every goitre case that has come his way. In every case, he says, as soon as thyroidectomy is terminated he systematically explores the mediastinum, and whenever thymus is found it is removed! We should like to have learnt more about these operations and their results. How many such operations have been performed and how much thymus is removed?

The book is written in a breezy style, but some of the expressions used by the author sound strange to the English reader, such as "the disease evoluates"; "paroxystic fits"; "a fright will not feaze this one"; "the baby will refuse to nurse"; "a gangue." The index at the end of the book is inadequate. In spite of imperfections the book is of considerable value, and if revised and supplemented by references and bibliography, as we hope it may be in a second edition, its value would be much enhanced. It is with this idea in view that we give space for so detailed a review.

Clinical Gynæcology. By JAMES C. WOOD, A.M., M.D., F.A.C.S. Philadelphia: Boericke and Tafel. 1917. Pp. xxxviii. 236. Price $2.00.

THIS monograph is based upon a series of clinical lectures delivered by Dr. Wood to the students of the Cleveland-Pulte Medical College, and deals with the application of homœopathic principles to gynæcological practice. The plea is set out for a better understanding of Hahnemann's system in the hope that it may be found to bridge the chasm between the regular, homœopathic and eclectic schools of medical thought in America. Quaint claims are made by the author: for instance, Hahnemann is hailed as the forerunner of Pasteur, of Basedow, and of Jung. Widal's agglutination test is called to witness to the efficacy of *baptisia* as a specific for enteric, and Wright's opsonins to support the place of sulphur as a specific for *Staphylococcus aureus* infections and of phosphorus for tuberculous disease. The book regarded as a treatise on clinical gynæcology is generously catholic in its outlook; barely 8 of the 15 chapters are devoted to purely gynæcological topics, and in these Dr. Wood does not hesitate to describe such conditions in the male as acute intestinal obstruction, pyloric stenosis, and a visceroptotic stomach. The remaining chapters are devoted to gastric ulcer, gastro-intestinal auto-intoxication, and mucous entero-colitis; reflex and toxic epilepsy; and exophthalmic goitre. It is recorded that a patient in the acute stage of the last-named ailment underwent the following operations: curettage, freeing of adhesions of the clitoris, dilatation of the rectum and removal of rectal papillæ, ovariotomy, and, finally, ventro-suspension. Dr. Wood bases this surgical therapy upon the hypothesis of exophthalmic goitre as a "reflex neurosis," and remarks, "we live in an age of multiple operations."

Dr. Wood has much to say which is interesting, but the light-hearted way in which he dilates the uterus and rectum and performs small and large operations in the genital sphere for almost all the cases he describes will, we fear, create very erroneous impressions in the minds of his students. As a text-book his work has no claim to serious consideration.

Modern Methods in the Diagnosis and Treatment of Phthisis, with Special Reference to Tuberculin. By JAMES T. MACMANUS, M.B., B.Ch. N.U.I. London: John Bale, Sons, and Danielsson. 1918. Pp. 64. Price 2*s.* 6*d.*

WITHIN the limit which he has assigned himself Dr. Macmanus has put together a very readable account of the methods at present in use for the diagnosis of tuberculous disease of the lung, drawing largely on the work of others, but stating their results fairly and adding comments from his own experience. This part of his book may be read with profit by all engaged in special work. Modern methods of treatment for the author begin and end with tuberculin, and here again the author states temperately his own experience and that of others. But since hygienic treatment is dismissed in a sentence, the expectation raised by the title is not fully satisfied. The reader will find tiresome the mis-spelling of many proper names.

THE LANCET.

LONDON: SATURDAY, OCTOBER 5, 1918.

Preventive Measures against Lice-borne Diseases.

IN an instructive lecture at the Royal Society of Medicine on the Prevention and Arrest of Lice-borne Diseases, which was published recently in THE LANCET,[1] Colonel W. HUNTER referred in some detail to facts and figures which he had obtained regarding the epidemics of typhus and relapsing fever which ravaged Serbia in the early part of 1915. No part of the lecture will be read with greater interest than that in which the rapid decline of those formidable outbreaks is described, and associated with the introduction on a large and systematic scale of simple measures for the destruction of lice, together with the prevention of movements of troops which would lead to their re-infection from the civil population. With the success which attended these measures the British medical mission sent out under Colonel HUNTER'S direction must always be gratefully associated. It was particularly to the credit of the mission that its energies were not dissipated in mere local palliative measures, but were concentrated on enforcing the recognition and general application of first principles of prevention, such as Colonel HUNTER has emphasised. It is well to recall these epidemics at the present time, as they illustrated in a most forceful and disastrous fashion the danger to important military operations which may result from the uncontrolled spread of typhus and relapsing fever, particularly when the troops exposed to infection are mixed with a civil population suffering from destitution and malnutrition, thus affording the most favourable soil for the dissemination of these diseases. At the present stage of the war, when we consider the conditions reported from Russia, from the Balkans, and even in parts of the Central Empires themselves, and remember that the winter has yet to come, recurrences of typhus or relapsing fever on the Serbian scale seem far from improbable, and they may well occur in circumstances which bring the Allied forces into the closest contact with the infection.

The almost negligible extent to which British forces have so far been affected by these diseases, at any period of the war and on any front, is as remarkable as it has been satisfactory, and may be attributed to a collection of causes. It has seldom happened that our fighting forces have been operating in areas stricken with epidemic typhus. Individual cases or groups of cases, when they occurred, have been very effectively dealt with by isolation, segregation of contacts, and thorough local louse destruction—or disinfestation, if we adopt the word which is now often used to distinguish those measures of disinfection which are sufficient for destroying parasites. The infection of these diseases has thus not been allowed the chance of spreading far afield, although the forces concerned may have included large numbers of soldiers infested by lice. As the experience of trench fever has shown how extensively lice-borne disease can be spread, even with the precautions taken on the Western front, it might be argued that the escape of the British forces can be attributed solely to the measures taken to prevent access of the specific infections. This, however, is unlikely, and other contributory factors must be remembered. The great epidemics of typhus and relapsing fever have frequently been closely associated with famine, and the view has often been expressed that a well-fed British soldier has normally a high degree of natural immunity against these diseases. This view deserves consideration, though there is some evidence in a contrary sense; for example, the heavy incidence of typhus on the attendants in Russian prisoners' camps in 1915.[2] The effect of the great efforts which have been made to keep down lousiness in the Army as a whole has, however, unquestionably been one of the main causes of safety. The record of all the British Armies in this matter, including particularly those on the West, has been one of steady improvement and progress, to which the unsparing labours of all ranks of the specialist sanitary service, as well as of experts at home, have notably contributed.

All kinds of devices are now used in combating lousiness, including the method of disinfecting clothing, blankets, and kits with current steam, on the proved efficacy of which Colonel HUNTER lays so much stress, both in regard to clothing in bulk, as treated in Egypt by the railway disinfecting vans, and clothing in small lots, as dealt with in Serbia by the barrel disinfector. Other effective methods are provided by special huts and dug-outs into which circulating hot air is introduced, while the experience of many shows how much can be done with no other materials than a hot iron, petrol, soap, and a wire brush. The nature and details of these different methods are now well known, at least in the Army, where they are described in various official circulars, and demonstrated to all officers going through courses of sanitary instruction. In louse destruction it is well always to keep in mind that the difficulties do not lie in the destruction of lice and their eggs, which can be accomplished with relative ease and needs no higher temperature than 55° C., but with the organisation of the methods of cleansing and disinfestation. The latter must be applied at the same time to all the group of men concerned and all their belongings, their re-infestation must be prevented, and the process must be systematically repeated. These requirements, simple as they appear, are most difficult to fulfil in actual conditions of a campaign, and the medical officer who is to secure their fulfilment should keep in mind the enthusiasm and persistence which Colonel HUNTER and his fellow workers infused into the methods which they pressed in the Eastern areas in the earlier years of the war, and which were so largely responsible for their success.

[1] THE LANCET, Sept. 14th (p. 347) and Sept. 21st (p. 377).

[2] Cf. THE LANCET, April 24th, 1915, p. 887.

The Conditions of the Royal Air Force Medical Service.

THE conditions of the Royal Air Force Medical Service, which were published in THE LANCET, will have been read with satisfaction by the medical profession, for they represent an improvement from the scientific point of view upon any terms which have hitherto been offered to the medical profession when engaged on naval, military, civil, or administrative work. These conditions doubtless were not arrived at without considerable effort, and those who bore the brunt of the struggle deserve the thanks of their professional brethren. They have made it possible for the Royal Air Force to possess a medical service which should be an effective safeguard against many of the dangers inherent in aviation, whether as an athletic achievement or a fighting activity, and they have done this by securing free play in greater measure to scientific ideals.

The partition of the medical work of the Royal Air Force into two main branches, one having the care of the effective personnel and the other of the non-effective, makes proper room for the allocation of the medical officers to occupations for which they are fitted. The care of the effective personnel will be undertaken by officers whose work has lain on the hygienic and preventive side of medicine, while it is here also that the psychologist will have his fruitful field of activity, for the selection of the flying officer takes into consideration much more than the physiological attributes of the candidate, as Captain T. S. RIPPON and the late Lieutenant E. G. MANUEL showed in their report to our columns.[1] For while it is absolutely necessary that there should be no doubt whatever concerning the respiratory and circulatory systems of the flying officer, and while his special senses, particularly the visual reflex, play an important part in his success, the flying temperament will be an asset of incommensurable value, and one whose ascertainment will fall to a great extent upon the officers of the Royal Air Force Medical Service working in the division of the effective personnel. It may be that this temperament cannot be detected with certainty until after selection and trial, but it must be looked for. The care of the non-effective personnel is the second great division of the work of the Royal Air Force Medical Service. This curative side provides room in the service for experts in the surgical treatment of the eye, throat, nose, ear, and plastic surgery, for neurologists, and practitioners in every province of remedial therapeutics. It is, we trust, the intention of the authorities to place each of these main divisions of the Royal Air Force Medical Service under a director having administrative control of his division and direct access to the Director-General of the Force—for this is how, we hope, the Medical Administrator will be styled, in consonance with the title employed in the sister services.

Special attention may well be called to the fact that throughout the service a second principle prevails, almost equally important for scientific efficiency with the principle of fitting the employed with suitable employment—and that is promotion by merit. The third general condition of medical service in the Royal Air Force runs:—

> Subject to the exigencies of the Service, a medical officer will be selected for, and eventually allocated to, work in the subdivision for which his ability best suits him. Since, however, the success of any special work in the Air Force will depend upon a sound knowledge of the conditions of life of the effective personnel, medical officers will not be earmarked for one of the special subdivisions of the Medical Service until selected for the higher or Grade A pay, vide Appendix II.

And the fifteenth general condition runs:—

> Promotion to ranks above that of Captain in the R.A.F. Medical Service will be by selection to fill vacancies in the establishment.

Medical men should realise that the officers in the service will, in accordance with these paragraphs, be entrusted with subdivisions of medicine or surgery where they have shown special knowledge, while the system of charge-pay in vogue in the medical services of the Navy and Army has been replaced in the medical service of the Royal Air Force by a system of special merit pay. When an officer has shown specially good work he is rewarded by selection for Grade A pay, and he will draw this pay for a probationary year, and then, being confirmed in Grade A, will continue to draw it, however employed, until he obtains promotion to a higher rank. Then he has to make good again, and by the recurring incentives the powers of concentration are developed and energies regularly stimulated.

[1] THE LANCET, Sept. 28th, p. 411.

Filling up the Ranks.

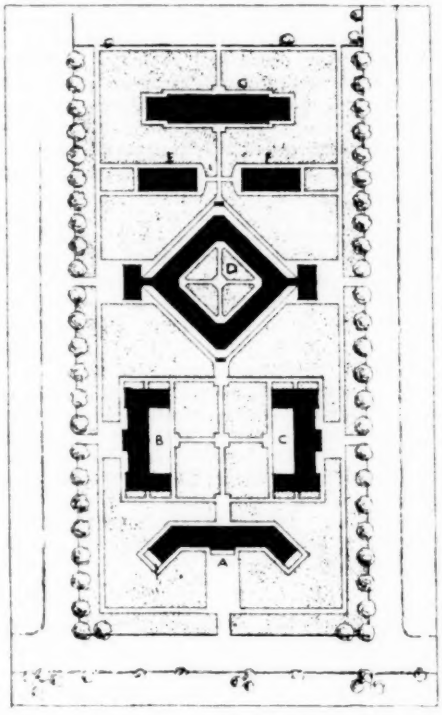
THE winter session opened on Tuesday last at the hospital medical schools in London, although only at a few did the exigencies of war permit of the usual formal address and celebration. Speaking at the Middlesex Hospital Dr. C. H. BROWNING dwelt upon the great future of medicine as an applied science. At King's College Sir WATSON CHEYNE emphasised the complementary aspect of the human element in medical practice. There is, in truth, room for minds of many bents among those who take the oath of HIPPOCRATES. Returns of the new entries at the medical schools have not yet all come in, but enough to show what is probably a record number for the year which has begun. Many of the classes for ancillary studies at University College have more than doubled in size, and Miss ALDRICH-BLAKE welcomed a hundred new women students at the London School of Medicine for Women. It is little wonder that the present moment should attract both men and women into the healing profession. However soon the war may be over, the problem of the restoration of the disabled combatant is already sufficient to occupy the best medical hands and brains for at least twenty years ahead, while the record of service in the field for the fourth year of war, which we print on another page, contains an inspiring account of self-sacrificing effort in many lands. Honours have been conferred upon many of the survivors, but the ranks have been sadly depleted, one large school alone recording nearly a hundred past students killed in action since the beginning of the war. Large as the entry of students may be, it will not be more than sufficient to fill up the ranks.

Annotations.

"Ne quid nimis."

A MODEL HEALTH CENTRE.

AT the meeting of medical men at Steinway Hall on Oct. 1st, which we report in another column, Dr. Addison, Minister of Reconstruction, said that the general scheme for the unification of public health activities is now being considered by the War Cabinet. Here he gave his medical audience no further hint as to the tenour of the impending Ministry of Health Bill, although at the Pharmaceutical Society on the following day he spoke of the growth of a series of specialist and technical services around medicine and pharmacy which may before long present different problems, both of training and personnel. Sir Bertrand Dawson has now reprinted[1] his Cavendish lectures, and the pamphlet will serve a useful purpose in concentrating attention on what must be the essential parts of any scheme hoping to introduce harmony into the medical services of the country. At the same time Sir Bertrand Dawson goes into interesting detail in describing a model health centre, its arrangement and purpose, giving a large scale plan elaborated by Major Biddulph-Pinchard, R.A.F. This plan, of which we reproduce here the key, represents a health centre



serving a town of about 30,000 inhabitants, drawn from an imaginary aeroplane 300 feet above the ground. The distance from the edge of the town to the entrance of the health centre is supposed to be about a quarter of a mile. The plan embodies the conception that the furtherance as well as the restoration of health needs provision by the health authorities, and that both are the responsible concern of the medical profession. The details are as follows:—

Clinic A provides accommodation for ten doctors, with waiting rooms, an examination and operating room, radiographic institute, laboratory, dispensary, rooms for keeping records of cases, and a common room where the doctors could meet in friendly consultation. Behind this curative clinic are the preventive clinics, B and C. Here would be located services for maternity care, infant welfare, school hygiene, dentistry, and any others which the special needs of the town might require. Behind this is a diamond-shaped hutted hospital, D, with two annexes. The wards vary in size and are allotted to different purposes; the verandahs attached to them make provision for open air treatment. One of the annexes provides accommodation for an operating theatre with its subsidiary equipment. E is allotted to hydrotherapy and F to massage, passive exercises, and electrical treatments. G is a fully equipped gymnasium for physical culture and for developmental and remedial exercises.

All the buildings are to be constructed on the hutted plan, Sir Bertrand Dawson holding that the progress of knowledge and the changing needs of the community make it important to avoid the permanency of bricks and mortar. A playing ground forms an important part of the author's scheme. Here exercises and games designed to secure physical fitness and beauty and to remedy defects would be directed by skilled instructors. Here, too, he would provide for our national games under conditions of true sportsmanship and detached from undesirable overgrowths. The playing grounds are not to be places in which to loll about in idleness, but rather for pleasurable and ordered occupation, where body and mind are taught to work together in the happiness of concentrated effort. In cities Sir Bertrand Dawson would place the clinics alone in convenient numbers within the town, removing hospital and its adjacent services with the playing grounds to the outskirts. He would discard the practice of building complete hospitals within towns. His scheme, which before the war would have appeared merely visionary, is certainly capable of practical realisation if it commends itself generally to the medical profession.

[1] The Nation's Welfare: the Future of the Medical Profession. Cassell and Co., Ltd. Price 6*d*.

THE MIGRATION OF METALLIC BODIES IN THE CIRCULATORY CURRENT.

A NUMBER of cases have now been recorded of migration of projectiles in the circulatory current. Bullets have been carried from the left side of the heart into the aorta and then lodged in a large artery, such as the axillary or femoral, arresting the circulation and producing gangrene of the limb. In the venous system the problem of migration is not so simple; the projectile may migrate either with or against the blood current. A case has been recorded in which a bullet entered the right ventricle and gained the origin of the iliac vein, and one in which a shrapnel bullet, first situated in the right auricle, was found an hour later in the triangle of Scarpa, the patient having raised himself; and then, after a few minutes in the dorsal decubitus position, it was found on a level with the sacro-iliac synchondrosis. Usually, however, the migration is in the direction of the blood current. Thus, in a wounded soldier radiologic examination showed a projectile first in the iliac region, then in the right auricle. At a meeting of the Académie de Médecine of Paris, M. Ch. Achard and M. Léon Binet reported a number of experiments which they had made on the migration of metallic bodies in the circulation of dogs. Grains of lead introduced into large arteries rapidly gained the periphery, even when the limb was

elevated and the movement therefore opposed by gravity. In veins, on the other hand, gravity exercised an important influence. Four grains of lead and four of rice were introduced separately into the femoral vein of a dog in the horizontal position and driven onwards by an injection of saline solution. When the animal was killed 15 minutes later the grains of rice were found in the right lung and the grains of lead in the abdomen, engaged in the termination of the hepatic vein. Into the left femoral vein of a dog lying on a table inclined at an angle of 35° with the head above, 2 grains of rice and 2 of lead were introduced. One grain of rice was found in the right lung and the other in the right heart; the 2 grains of lead were found in the pelvic veins on the left side of the bladder. Thus in the veins light foreign bodies are carried with the current and against gravity, heavy bodies the reverse. But there are other factors in migration—the volume, form, and contour of the body. The optimum condition for movement is realised by a smooth sphere, which reduces friction to a minimum. On the other hand, a rough surface resists movement. The moral is that the position of a foreign body should be verified at the time of operation and the patient placed in a position in which gravity opposes further movement.

SKIN DISEASES PRODUCED BY LUBRICANTS.

WE have received from the Department of Scientific and Industrial Research a copy of a Memorandum on "Cutting Lubricants and Cooling Liquids and on Skin Diseases Produced by Lubricants." It is explained that cutting lubricants and cooling liquids are oils or emulsions used in connexion with the cutting of metal. In selecting the correct grade of cutting lubricants it would appear to be necessary to consider several important factors, such as (1) cutting speed and depth of cut; (2) the material under manufacture; (3) the system of application of the lubricant or emulsion; and (4) the production of skin diseases. Particulars as to the suitability of various oils and emulsions and their adaptability on the various metal materials used are given under the first three heads and are of technical importance. Passing over these, we deal with the medical aspects of this occupation. Generally speaking, it appears from the description given by Dr. J. C. Bridge, Inspector of Factories, Home Office, that oil rashes are of two kinds—the first is due to plugging of the small glands at the root of the hairs on the arms and legs of the workers, the second to mechanical injury to the skin produced by metallic particles suspended in the cutting lubricant. In the first case, if many hairs are affected the arm or leg presents an appearance of a crop of raised red spots (papules) with a black spot as a centre, or if the inflammation has gone as far as suppuration (abscess formation) a yellow head. In the second case minute particles suspended in the cutting lubricant may produce injury to the skin. This occurs chiefly on the hands, where two skin surfaces are rubbed together, as, for example, between the fingers. Injury to the skin may also be produced on any part of the hands and arms by wiping with a cloth or rag while the hands or arms are coated with a film of fluid in which metallic particles are suspended. A septic infection may result. Simple precautionary measures are suggested, such as a free use of hot water, soap, and the scrubbing brush, and dusting the arms before commencing work with a powder containing equal parts of starch and zinc oxide. Constant removal of metal particles is necessary to avoid injury to the skin. The oils should not contain free fatty acid. In the case of cutting oils which get thinner on heating the metal particles will sink completely out. The addition of disinfectants or antiseptics to the oils does not appear to give satisfactory results, although a previous heating of the oil not only sterilises it but increases its antiseptic and germicidal action. As to treatment, the simple application of a mild antiseptic gives good results. It is curious that certain individuals appear to be particularly susceptible to the action of lubricants, and are therefore best kept from contact with the oil.

IMPRISONMENT FOR MILK ADULTERATION.

AT Folkestone recently a dairyman named Percy Jell was sentenced to undergo two terms of three months' imprisonment with hard labour for adulterating milk. A pint of milk sold by him to an inspector had been found to contain 43 per cent. of added water, and two days after this sale took place he had been seen pouring half a gallon of yellowish water into a two-gallon can which was then filled with milk from a churn. The yellow colour referred to was, no doubt, used in order to give to the compound sold the tint which the general public associate with richness in milk, and to avoid the bluish tint which at one time earned for milk in the metropolis the name of "London blue." It is to be presumed that the two terms of imprisonment awarded will have to be served consecutively and not concurrently, and no one will deny that he has been over punished. He would have richly deserved his sentences if the offences described had stood alone. It was, however, stated that during the current year Jell had paid fines amounting to more than £100 in respect of convictions for adulterating milk. He must have been able, therefore, to conduct a fairly prosperous trade in watered milk in spite of the fact that his dishonest propensities were well known to the authorities. To this it may be added that on leaving prison there is nothing, so far as we are aware, to prevent Jell from again carrying on business as a milk-dealer, which suggests that the issue of licences to dairymen as they are issued to hackney carriage drivers might be a practicable way of protecting the food of the people. Forfeiture of a licence with severe penalties for obtaining one without being entitled to it, or for selling milk as a business if not duly licensed, would be a more effective penalty than an inadequate fine or even than hard labour.

THE Harveian Oration will be delivered by Dr. Percy Kidd, at the Royal College of Physicians of London, on Friday, Oct. 18th, at 4 P.M.

A VALUED collaborator in our editorial work over a range of not less than 50 years, Mr. Robert Brudenell Carter, consulting ophthalmic surgeon to St. George's Hospital, London, has this week attained his ninetieth birthday.

WE regret to announce the death of Dr. Alfred Hume Griffith, the value of whose work as superintendent of the Epileptic Colony at Lingfield has earned wide recognition.

MEDICAL MEN IN PARLIAMENT.

A MEETING of the medical profession was held in Steinway Hall, London, on Oct. 1st, having for its object the securing of a more adequate representation of the medical profession in Parliament. The meeting was summoned informally and was well attended, all parts of Steinway Hall being crowded.

Sir HENRY MORRIS, who presided, opened the proceedings by emphasising the fact that after the war the medical profession would share in the great changes that would occur in all society. The organisers of the meeting, he said, had no desire to oppose any union, association, or committee, working along similar lines, and no intention of impeding any individual doctor who wished to become a Member of Parliament. The real object of the meeting, if the medical voice was considered to be needful in Parliament, was the choice of an executive upon whom the onus would be put of selecting suitable members of the medical profession who were willing to stand as Parliamentary candidates. Regarding this country as having originated all the great discoveries in public health and sanitation, he said that it was an anomaly that the medical profession should have no more influential voice in the legislature than at present it possessed. The idea of those responsible for the meeting was to elect an executive committee, independently of any section or fund, such committee to seek out and select suitable members of the profession who would be willing to stand for Parliament and to see that such men were representative of the profession as a whole. It would be important to have the candidates in readiness. The subjects on which such Members could give valuable help were very numerous, but he directed special attention to medical research and education and the application of scientific knowledge to the betterment of the community. Research must receive State aid; it could no longer be self-supporting if it was to be adequate. He asked whether the House of Commons as at present constituted could be regarded as an assembly to decide such questions as he had referred to, composed chiefly, as it was, of lawyers, landlords, mine-owners, ship-owners, and successful business men, with only a few educationists. As an instance, there were the questions as to whether, and if so how, laboratories might be bound up with the Universities, medical schools, special and general hospitals, or health insurance committees, and questions as to the scientific investigations, regular and special, which were undertaken from time to time on the authority of the various Government Departments or Royal Commissions. It was high time that the profession should take steps to show its importance to the State and to the public through the voice of competent and reliable members of the profession. A candidate for this representation should possess learning, knowledge, humanity, and probity; he ought also to be acquainted with some form of official life, and be able to express his views clearly and forcibly in public. In addition he should possess expert knowledge, so that he could apply his knowledge of medicine and surgery to the various problems connected with the public health and medical education. He should impress people with the fact that while defending his profession he intended to act strictly for the public good. They did not want men who would hug delusions as if they were principles, or fads as if they were ideals, or who would take part in political intrigues under the impression that they were democratic reforms. Numerically the medical profession was very weak for electioneering purposes. Members of the profession were unlike those of the Labour Party, who could present overwhelming numbers in any constituency so as to make their election secure; nor were they like lawyers, to whom speaking at political meetings was a good training for their profession. Medical men were feeble folk, coneys who made their houses in the rock of private practice; they were the confidants and friends of private families, who were likely to mistrust a doctor who concerned himself with the matters of communal welfare. Hitherto the profession had had no political standing in this country, and that state of things could not last. There should be means of getting the best brains of the profession without electioneering, such as by direct representation, as in the case of the Universities, or through the various medical corporations.

Dr. CHRISTOPHER ADDISON, Minister of Reconstruction, then moved the first resolution in the following terms:—

That in the interest of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons.

He said that after the war, with the upheavals, displacements, reactions, and burdens of loss and debt, there must be a vital need that the best service should be supplied to the State by all persons, or civilisation would be in jeopardy. A brief consideration of the facts of our national and social life would, he thought, reveal a wealth of opportunity for advice, direction, and help from all medical men of the right type and training in matters affecting the health of the people, such as the conditions of labour, the methods of production, and the processes of invention and research; in all these classes of public affairs men possessing medical knowledge should be invaluable. Pointing out that no medical man could be a politician in respect of disease, he did not consider that this meant that, as a citizen, he should not take the keenest interest in political affairs, and he reminded the audience that a medical man in Parliament would be there as a representative of his constituency, that is of the people, and not as a medical man. In Parliament any Member who tried to promote the best public interest could, he assured them, safely place professional interests second in his mind and escape the depressing career of the professional axe-grinder. Premising that the House of Commons "is a most tolerant and kindly place, putting sincerity and earnestness of purpose, if coupled with common sense, in the forefront of its regard," he said that medical help would be more and more required in the counsels of the nation, while he held that the claims for representation in Parliament by medical men were supported by medical activities during the war, as shown by the combating of new and vile methods of warfare introduced by the Germans, the rapid improvement in the methods of surgery, the developments for the training and employment of the wounded, and the institution of scientific research in manifold directions. Especially he called attention to the great success of medicine in the preventive field, whereby, for example, typhoid fever had been nearly abolished, a fever which, in a war of hideous magnitude lasting for so long a period, might well have cost the country a million lives. Quoting the Prime Minister, he said we could not run an A1 Class nation on a C3 Class population, which was only to insist that all questions affecting the home, workshop, school, personal habits, food, air, and exercise require the profound attention of Parliament, and therefore the help of medical men. He alluded to the report of the Health of Munition Workers Committee, a body set up by Mr. Lloyd George and himself when they were collaborators at the Ministry of Munitions, and showed that as far as it went this report contained valuable guidance. In February, 1914, to a company of medical men, he had referred to these things, and pointed out that as a first step it was necessary to bring together the assortment of different departmental responsibilities in health matters and to secure that the thinking out and development of a systematic health policy commensurate with the most urgent national needs should be made the duty and responsibility of a definite body of men, until when the country would be the victim of sporadic, disjointed, and often conflicting effort. Throughout the progress of the war, he said, it had become more and more apparent that delay was dangerous, so that during 1917, at the request of Mr. Montagu and the late Lord Rhondda, whose clear mind in this as in other things at once gripped essentials, he had presided over a small committee which presented a report on what was regarded as the absolute minimum of such a scheme—a scheme for a Health Ministry. During the past few months as Minister of Reconstruction he had discussed details with representative bodies of different kinds, including representatives of a joint committee provided by the Colleges of Surgeons and Physicians and the Society of Medical Officers of Health, as well as with a committee of the British Medical Association. Now, he informed his hearers, the proposals had been examined as a whole and with great care by the Home Affairs Committee, and had been passed by them to the War Cabinet for consideration. The Ministry of Health would not itself be a health service. It would be its duty to secure the development and administration throughout the country of adequate health services. He concluded by pointing out

that the C 3 Class, and all implied by that term, could not be dealt with as matters of water-supply, drainage, prevention of infective disease, or adulteration of food, and that the medical profession had a great duty and an unexampled opportunity before it. The claims of the community for the considered experience and help of medical men were, he said, manifest.

Dr. ARTHUR LATHAM, in seconding the motion, asked whether medical men realised that they were the trustees of the national health, and that no one could take their place. If they were prepared to accept the responsibilities and duties of that proud office, they must be prepared to learn from the mistakes of the past. In the past the profession had not made its voice heard because it had no political power, and the latter was lacking because the profession was not united. It was especially important that the knowledge and experience of the general practitioner should be represented.

Mr. E. B. TURNER emphasised the resolution from his large experience in addressing meetings throughout the country in regard to venereal disease.

Sir W. WATSON CHEYNE remarked that there would not be enough medical men in the House to impress it by numbers; it must be by exactly informed judicial utterances. Above all was it necessary that there should not be divided counsels, as any good effect would thereby be destroyed. He hoped that there would be a little medical gathering of Members of Parliament and that they would agree on lines of policy in matters which concerned the profession.

Colonel KYNASTON spoke of his work in the Army Medical Service and the great need there was for enlightenment on medical and public health matters in the constituencies. The scheme now sought to be launched should be on a democratic basis.

The resolution was agreed to.

Mr. E. F. WHITE moved:—

That a Representative Committee be appointed for the purpose of: (i.) Nominating medical men as being suitable to voice the opinion of the profession in the House of Commons on matters affecting the national health; (ii.) taking such steps as may be possible to further the election of those nominated to the House of Commons; and that this committee report to a subsequent general meeting of the profession.

Mr. LOCKHART MUMMERY seconded.

Colonel KYNASTON proposed, and it was duly seconded, an amendment as follows:—

That a Representative Committee be appointed for the purpose of taking such steps as may be possible to further the election of medical men to the House of Commons.

Dr. BRACKENBURY pointed out the great need for unity in this matter, and referred to a committee which had already been in existence six months with the same object.

In a discussion which followed.

Colonel W. R. SMITH objected to the motion, and said he would be satisfied if it were put without Section 1.

Colonel Kynaston's amendment was, by leave, withdrawn in favour of Colonel Smith's.

Mr. N. BISHOP HARMAN protested against this attempt to step in when 23,000 members of the British Medical Association had instructed their duly accredited representatives, who had been working at the matter during the last six months.

The amendment was agreed to, and was passed as a substantive motion.

Sir THOMAS HORDER moved:—

That the Representative Committee consist of: (i.) a representative of each of the following ten organisations or corporations—(1) Royal College of Physicians, (2) Royal College of Surgeons, (3) Royal Society of Medicine, (4) British Medical Association, (5) Incorporated Society of Medical Officers of Health, (6) Medical Society of London, (7) Medical Political Union, (8) Medical Women's Federation, (9) Poor-Law Medical Officers' Association, (10) State Medical Service Association; (ii.) three representatives of the Medical Press—namely, the Editor of *The Lancet*, the Editor of the *British Medical Journal*, the Editor of the *Medical World*; (iii.) unofficial members.

Dr. E. H. M. STANCOMB (Southampton) seconded. The result was a decision to appoint the Committee and to add the Royal Institute of Public Health and the R.A.M.C.

Considerable discussion ensued on a proviso on the voting paper supplied to the meeting that "persons who do not hand in voting papers will be counted as having voted for the list (of unofficial members) as printed." Dr. CHAPPLE, M.P., regarded such a provision as monstrous.

The CHAIRMAN having agreed to withdraw this, ballot papers were collected, and a vote of thanks to the Chairman and Dr. Addison concluded a long meeting.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Health of Belfast: Serious Condition.

IN the *Belfast Northern Whig* some most alarming figures have been recently published as regards the health of the city of Belfast. In 1917 there were 932 deaths from pulmonary phthisis, as against 830 in 1916 and 813 in 1915. Notwithstanding the fact that a new scheme for dealing with tuberculosis (specially praised by the Irish Local Government Board) has been in vogue for the past two years, costing £35,000 a year, it appears that from Dec. 20th, 1917, to August 20th, 1918, the number of deaths registered in Belfast as caused by pulmonary phthisis was 783, as against 711 in the same period of 1916–17, which is an increase of 72, or 10·1 per cent., and the phthisis rate for 1918 was actually 2·4 per 1000, which is higher than for any year since 1907. Bad as these tuberculosis figures are, what is to be said for the infantile mortality rate, which is generally admitted to be the test of effective public health measures? In 1917 the rate rose to 130 per 1000 births, an increase of 17 per 1000 as compared with the preceding year. The actual number of deaths of children under 1 year in 1917 was 1130. Now, in the eight months (between Dec. 20th, 1917, and August 20th, 1918) the deaths of children under 1 year numbered 936, as against 808 in the same period of the previous year, an increase of 128, or 15·8 per cent. In the first six months of the period (for some reason not specified no figures were published for the last two months) the deaths of children of 1 year and under 5 years were 599, as against 378 in the corresponding period of last year. And taking the six months—Dec. 20th, 1917, to June, 1918—there died of children under 5 years old in the city 1313, out of a total death-rate of 3999. Thus roughly one-third of the entire city death-roll in that period consisted of children under 5 years old! This state of affairs was before the influenza epidemic of this year reached its climax. In the five weeks, June 18th to July 25th, no fewer than 1232 persons died (influenza period), but, as showing that influenza was not a factor in the infantile mortality, only 133 children under 1 year died in these five weeks, whereas in the same period in April–May, they totalled 172, and in February–March, 140. What is a most serious circumstance is that during that period of six months specified there were only 4666 births as against 3999 deaths—that is, a natural increase of only 665. During the past eight months (mid-December to mid-August) the total deaths in Belfast were 5695 as against 4993 in the corresponding period of the previous year, and the total births 6346 as against 6097 in the corresponding period. In other words, the deaths increased by 702 (14 per cent.) and the births by 249 (3·9 per cent.), a most unfortunate state of affairs, as regards the natural increase of Belfast's population. The new child welfare scheme (which has neither ante-natal nor post-natal clinics, creches nor milk depôts) came into vogue in October, 1917; but so far as diminishing infantile mortality is concerned, it has really done nothing, though—like the tuberculosis scheme—it is costing a great deal of money. Owing to its present limited field of organisation, little can be hoped from it. The following figures are most significant as regards Belfast:—

	Total deaths.		Under 1 year.		1 year and under 5.	
	1918.	1917.	1918.	1917.	1918.	1917.
Dec.–Jan.	720	779	122	99	83	42
Feb.	594	829	99	175	92	93
March	654	751	140	144	111	79
April	940	821	172	133	168	71
May	607	561	97	84	102	55
June	484	442	84	64	45	38
July	1232	476	133	56	No return.	
July–Aug.	464	344	89	53	No return.	
	5695	4993	936	808	599	378

Salaries of Dispensary Doctors.

At a meeting of the Banbridge guardians, held on Sept. 9th, it was decided that a war bonus of £25 a year be granted to each medical officer, to date from Jan. 1st, 1918, a motion for a graded scale of payment, commencing with £130 and ending with £200 a year, being lost. The Omagh dispensary doctors decided on Sept. 11th that notice be given the guardians that from the 21st the doctors will be reluctantly compelled to cease all kinds of dispensary work

owing to no attempt having been made to meet their demands. On the day named the guardians met and appointed their chairman to confer with a member of the Medical Committee and Mr. E. F. Stephenson, of the Local Government Board, with a view of arriving at a settlement. The doctors were invited to continue work until the guardians had had an opportunity of discussing the finding of this conference.

Sept. 30th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Voluntary War Contributions.

OF the various war organisations working in Canada and overseas the most extensive are the Canadian Patriotic Fund for dependents of soldiers, the Canadian Red Cross Society, and the Military Branch of the Y.M.C.A. The first-named has raised about $40,000,000 (£8,218,600) throughout the Dominion; and Manitoba, working alone, nearly $4,000,000. The Canadian Red Cross in money and gifts has received about $19,000,000; the British Red Cross Society, to Dec. 31st, 1917, $6,100,000; Belgian relief, over $3,000,000; Military Branch, Y.M.C.A., about $4,600,000; gifts from Dominion and Provincial Governments to Imperial Government, about $5,500,000; and miscellaneous equipment and maintenance of hospitals overseas, field comforts, Polish and Serbian and French Relief Funds, about $8,000,000—making a grand total of over $90,000,000 (£18,491,850), which will still be added to by several millions for the mercantile marine.

Canadian Pensions.

In October, 1917, the Canadian Government brought into effect a scale of pensions which is believed to compare favourably with any of the Allies: Total disability, $600; widows, $480; parents, $480; children, $96; orphan children, $192; special allowance for helplessness, not to exceed $300—number of classes of disability, 20; and gratuity. To the end of May, 1918, the number of soldiers' disabilities have totalled 23,415, and the amount of annual liabilities, $3,687,145.61; soldiers' dependents, 24,213, and the annual liability, $5,600,326.00. The estimated liability for the year ending March 31st, 1919, is $15,000,000 (£3,081,975). Pensions in Canada are now being awarded at the rate of 125 per day, and 22 physicians, most of them having seen overseas service, are employed by the Pension Board at Ottawa. The salary for these was at the rate of $200 per month, but recently raised to $250 per month.

Casualties in the Canadian Expeditionary Force.

Up to June 30th, 1918, the official statement of the Canadian Government of the Canadian casualties gives the total number as 159,084, divided as follows: killed in action, 27,040; died of wounds, 9280; wounded, 113,007; died of disease, 2257; prisoners of war, 2774; presumed dead, 4342; missing, 384. Of the wounded and sick, between 30,000 and 40,000 have been returned to France for further service; about 50,000 have been returned to Canada wounded, medically unfit, or unavailable for various reasons. Some 200 Canadian officers have been lent to the United States for instructional purposes. About 2000 women have enlisted in Canada for services as nurses in the C.E.F. Seventy-three surgeon-probationers have been recruited in Canada for service with the Royal Navy.

Resolutions Passed at Hamilton Medical Meeting.

The following resolutions were passed at the Canadian Medical Week at Hamilton recently:—

1. That the various Provincial Medical Councils of Canada be respectfully requested to institute compulsory examinations in ophthalmology, including refraction work, and in oto-laryngology, if such are not already in force.

2. That the medical faculties of the universities in Canada be respectfully requested to confer, and, as far as possible, co-operate with a view to modifying the present curriculum so as to secure an arrangement of the subjects of study which will tend to ensure a more symmetrical training of the prospective practitioner for his life work.

3. That the various provincial medical councils be respectfully requested to make physical therapy, based on a more thorough course in physics, an essential feature of the medical curriculum, and a practical examination necessary in this subdepartment of therapeutics.

4. That the members of the Canadian Medical Association view with favour the publication of the medical history of the Halifax disaster by Professor D. Fraser Harris, of Halifax, and wish to state that in their opinion such a publication is most desirable.

The Khaki University of Canada.

Under the name of the Khaki University of Canada an educational plan has been inaugurated with the Canadian Forces overseas. It provides educational advantages in the form of lectures, study groups, &c., for soldiers who wish to use their spare time for practical study for after-war vocations. This Khaki University is recognised by Canadian universities, and the teaching is done by voluntary instructors—officers, chaplains, &c., who had previously had training in teaching. Sir Robert Falconer, President of the University of Toronto, is at present overseas, doing his bit as a teacher. There are said to be 93 libraries established in England and France, and that 8006 men have been registered, divided as to subjects as follows: commercial subjects, 2351; agricultural subjects, 1363; engineering, 1503; general educational subjects, 2789. Figures are not yet available as to classes in France.

Toronto, Sept. 21st.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SUBSCRIPTIONS TO THE SECOND APPEAL.

THE following subscriptions, completing the list up to Monday, Sept. 23rd, should have been acknowledged in our previous issue:—

	£	s.	d.		£	s.	d.
Sir A. Pearce Gould ...	5	0	0	Major W. M. A. Fletcher	1	1	0
Messrs. Bower and Sons	2	2	0	Dr. F. G. Clemow	5	0	0
Capt. A. Benjamin ...	1	1	0	Dr. S. H. Bown	1	1	0
Dr. Norman Fairfax ...	1	1	0	Dr. H. Leader	2	2	0
Dr. A. W. Cassie	1	1	0	Mr. A. Williams, M.P.S.	1	1	0

Monthly Subscriptions.

The following monthly subscriptions have been received for September:—

	£	s.	d.		£	s.	d.
Sir A. Pearce Gould ...	5	5	0	Dr. G. Grey Turner ...	1	1	0
Mr. E. Spencer Evans ...	0	10	0	Dr. W. S. Hart	1	0	0
Dr. Alfred Cox	1	1	0	Dr. Vincent Tighe... ...	0	10	0
Dr. A. B. Stevens	1	0	0	Lt. J. B. C. Brockwell,			
Dr. F. C. Morland	0	10	6	R.A.M.C.	0	10	0
Dr. K. J. Dougall	0	10	0	Dr. A. W. Forrest	1	0	0
Sir T. Barlow	0	10	0	Dr. W. Luffman	0	10	0
Dr. R. Legat	0	10	6	Dr. A. Graham	1	1	0
Dr. A. E. Naish	0	10	0	Dr. A. Hawkyard	0	10	0
Dr. Hyla Greeves	0	10	0	Surg. P. G. S. Davis,			
Dr. W. E. Good	0	10	0	R.N.	0	10	0
Major E. R. Fothergill,				Dr. H. Caiger	0	10	6
R.A.M.C.	0	10	0	Capt. H. L. P. Hullert,			
Dr. J. O. Musson	0	10	0	R.A.M.C.	1	0	0
Dr. W. Stewart	0	10	0	Dr. H. Whitehouse ...	0	10	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W. 1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

URBAN VITAL STATISTICS.

(Week ended Sept. 28th, 1918.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality was 11·4, against 11·3 and 11·7 per 1000 in the two preceding weeks. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 12·2, or 0·4 per 1000 above that recorded in the previous week; among the remaining towns the rates ranged from 4·9 in Ealing, 5·0 in Cambridge, and 5·2 in Darlington, to 19·0 in Dudley, 19·5 in Great Yarmouth, and 20·5 in Hastings. The principal epidemic diseases caused 307 deaths, which corresponded to an annual rate of 1·0 per 1000, and included 220 from infantile diarrhœa, 40 from diphtheria, 20 from whooping-cough, 12 from measles, 8 from scarlet fever, and 7 from enteric fever. The deaths from diarrhœa, which had declined from 435 to 299 in the four preceding weeks, further fell to 220, and included 67 in London, 24 in Liverpool, 10 in Sheffield, and 8 each in Birmingham and Middlesbrough. The 939 cases of scarlet fever and 1060 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were 100 and 35 above the respective numbers remaining at the end of the previous week. Of the total deaths in the 96 towns 139 resulted from violence. The causes of 33 deaths were uncertified, and included 7 each in Birmingham and Liverpool, and 4 in Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 14·3, against 10·6 and 11·6 per 1000 in the two preceding weeks. The 398 deaths in Glasgow corresponded to an annual rate of 18·6 per 1000, and included 12 from infantile diarrhœa, 7 from diphtheria, 5 from whooping-cough, and 2 from measles. The 76 deaths in Edinburgh were equal to a rate of 11·9 per 1000, and included 2 from diphtheria and 2 from infantile diarrhœa.

Irish Towns.—The 153 deaths in Dublin corresponded to an annual rate of 20·0, or 3·1 per 1000 above that recorded in the previous week, and included 6 from infantile diarrhœa, 2 from whooping-cough, and 1 from enteric fever. The 77 deaths in Belfast were equal to a rate of 10·2 per 1000, and included 3 from infantile diarrhœa and 1 from enteric fever.

The War.

THE CASUALTY LIST.

THE following medical officers appear among the casualties announced since our last issue :—

Killed.

Lieut.-Col. R. T. Collins, D.S.O., R.A.M.C., was a student at Guy's Hospital, London, and qualified in 1902. Shortly afterwards he joined the R.A.M.C. The award of the D.S.O. was recorded in THE LANCET of Jan. 12th, 1918, p. 78.

Capt. C. R. Howard, R.A.M.C., attached King's African Rifles, was educated at Cambridge University and at Guy's Hospital, London, and qualified in 1902. At the time of joining up he was in practice at Frome, Somerset, where he was M.O.H. to the rural district council, assistant school medical officer to the County Education Committee, and honorary surgeon to the Victoria Hospital.

Capt. C. H. Fischel, R.A.M.C., attached Leicester Regiment, qualified in London in 1914, and joined the R.A.M.C. in the early part of the following year.

Major H. B. German, M.C., R.A.M.C., was a student at Guy's Hospital, and qualified in 1904. For some years he served in the Royal Navy, and was awarded a medal for services in connexion with the Calabrian earthquake. Later he practised at Waltham Abbey, Essex, and joined the R.A.M.C. soon after the outbreak of war.

Died of Wounds.

Major J. Hughston, R.A.M.C.

Previously Reported Wounded, now Reported Died of Wounds.

Capt. L. E. W. Roberts, Australian A.M.C.

Died.

Lieut. L. S. Ramien, I.M.S., was educated at Madras University, and qualified in London in 1916, joining the I.M.S. shortly afterwards.

Capt. T. F. Graham, Canadian A.M.C. (See Obituary of the War.)

Wounded.

Capt. G. R. Phillips, R.A.M.C., attached Sherwood Foresters.
Surg. R. K. Shaw, R.N.
Lieut.-Col. K. W. MacKenzie, D.S.O., M.C., R.A.M.C.
Capt. J. McCusker, Australian A.M.C.
Capt. K. McLean, Australian A.M.C.
Capt. J. H. Campain, R.A.M.C., attached Wilts Regiment.
Lieut. G. E. Birkett, R.A.M.C., attached Glos. Regiment.
Major W. Russell, M.C., R.A.M.C.
Major E. S. Sowerby, M.C., R.A.M.C.
Capt. K. McA. Ross, R.A.M.C., attached Highland L.I.
Capt. W. K. Flook, Australian A.M.C.

Seriously Injured.

Acting Staff Surg. E. L. Atkinson, D.S.O., R.N.

Missing.

Capt. J. Buchanan, R.A.M.C., attd. Roy. Warwickshire Regt.

THE HONOURS LIST.

The following awards to medical officers are gazetted. All are members of the R.A.M.C. except where otherwise stated :—

Distinguished Service Order.

Major (temp. Lieut.-Col.) **ALBERT RICHARD HENCHLEY.**—For conspicuous gallantry and devotion to duty during an enemy attack. In two days he succeeded in evacuating some 1500 patients. He got away his personnel and lorries under shell and machine-gun fire, and proceeded to a hospital elsewhere from which he evacuated 300 wounded by ambulance trains. His unit was the last to leave the town. His coolness and resource were the means of saving a large number of wounded from falling into the hands of the enemy.

Bar to the Military Cross.

Capt. (acting Major) **ROGER ERRINGTON, M.C.**—For conspicuous gallantry and devotion to duty during an enemy attack. He remained in his dressing station under machine-gun fire until it was evacuated. He then took another dressing station and again under machine-gun fire evacuated all patients. It was entirely due to his coolness and devotion to duty that these wounded did not fall into the hands of the enemy.

Temp. Capt. **PAUL MACDONALD LITTLE, M.C.**—For conspicuous gallantry and devotion to duty in attending to wounded in the front line under heavy shell, machine-gun, and rifle fire. His example of coolness and devotion to duty caused a large number of wounded to be successfully evacuated from the front line.

Temp. Capt. **ALAN COWAN MANN, M.C.**—For conspicuous gallantry and devotion to duty during an enemy attack. Hearing that a number of wounded had been left in a dressing station, he organised bearer parties and led them through heavy shell fire to the dressing station and evacuated all the wounded. Through his devotion to duty many wounded were cleared who would otherwise have been abandoned.

Capt. (acting Major) **ROBERT TAYLOR, M.C.**—For conspicuous gallantry and devotion to duty while in command of an advanced dressing station. He worked with untiring energy, attending to and supervising the loading on to cars of all cases. The dressing station was hit several times, and eventually came under machine-gun fire, but he succeeded in clearing all wounded. He showed fine determination and devotion to duty.

Military Cross.

Capt. **ALFRED LANG BODLEY.**—For conspicuous gallantry and devotion to duty. When a dug-out was heavily shelled and blown in he rescued a man from the most dangerous place where three men lay buried, and attended to the men affected, assisting to get them away. In one case he tried for hours to save a man who had lost consciousness, and during this time lost consciousness himself, but continued his work on recovering. His personal example of courage was of the utmost assistance.

Capt. **JAMES IVER McIVER CHIRNSIDE,** Australian A.M.C.—For conspicuous gallantry and devotion to duty while attending to wounded men under heavy shell and machine-gun fire. During the retirement of the rearguard squadron he attended to the wounded while the enemy were firing at a distance of 300 yards. He showed great devotion to duty.

Temp. Capt. **WILLIAM COOPER.**—For conspicuous gallantry and devotion to duty during an enemy attack. He was unremitting in his attentions to wounded under fire, and stayed behind in a village with a small salvage party attending to a number of wounded and gassed officers and men who came in. He behaved splendidly.

Temp. Capt. **GUY DE HOGHTON DAWSON.**—For conspicuous gallantry and devotion to duty. During an arduous period of retirement, lasting for some days, he worked with unflagging energy in attending to the wounded under heavy fire, evacuating them successfully, on one occasion when the enemy were within 40 yards of the R.A.P. His example helped and encouraged all those under his command.

Capt. **CHRISTOPHER MATHESON FINLAYSON,** Canadian A.M.C.—For conspicuous gallantry and devotion to duty. During a raid on the enemy's positions he worked at the advanced aid-post with the greatest gallantry and unselfish courage. Later he withdrew to the fixed rear aid-post and performed valuable duties.

Capt. (acting Major) **ROBERT ALFRED GREENWOOD.**—For conspicuous gallantry and devotion to duty in evacuating the wounded. When a bridge was blocked and partly submerged by a fallen tree he supervised the clearing and helped to carry the wounded across under heavy shell fire on both banks. Though severely shaken by a shell bursting and partially burying him, he carried on until all the wounded were safely across the canal.

Temp Capt. **NORMAN McALISTER GREGG.**—For conspicuous gallantry and devotion to duty during a raid. He untiringly attended to the wounded under heavy enemy fire until the last man was cleared, and showed great coolness and devotion to duty. He worked persistently throughout the raid in the open, and searched for any wounded that might have been overlooked. He behaved splendidly.

Capt. **HENRY TAYLOR LAMB.**—For conspicuous gallantry and devotion to duty when an outpost company were suffering numerous casualties from enemy bombardment. He proceeded to the locality at once, and under heavy shelling got all the wounded moved to shelter, remaining with the company until the bombardment ceased. During a trying time he showed splendid devotion to duty.

Temp. Capt. **WILLIAM LUMSDEN.**—For conspicuous gallantry and devotion to duty. While in charge of bearers carrying wounded over an exposed hill-side swept by shell and machine-gun fire he saw a bearer fall. He at once ran to him and dressed his wounds, after which he remained with him until dusk, the man being unable to walk. He then assisted him across country to a place of safety. His conduct was splendid.

Capt. **JOHN ERIC McGLASHAN,** Australian A.M.C.—For conspicuous gallantry and devotion to duty in charge of the evacuation of wounded during an attack. He visited his various posts under heavy shell and machine-gun fire and was largely responsible for the successful evacuation of the wounded.

Capt. (acting Major) **KENNETH ARLY PORTERFIELD RYND MURRAY.**—For conspicuous gallantry and devotion to duty in charge of an advanced dressing station during an enemy attack. He worked continuously for two days, often under heavy shell fire, and evacuated over 200 cases. Owing to the constant change of position he had great difficulty in keeping touch with the medical officers of the regiments he was clearing, and only succeeded in doing so by visiting them all personally on several occasions. His courage and magnificent devotion to duty set a fine example to all his men.

Temp. Lieut. **THOMAS GORDON PLAYFORD.**—For conspicuous gallantry and devotion to duty. Assisted by an orderly, he dressed the wounds of several officers on the roadside under heavy shell fire. Later, he established a dressing station in a village which was rapidly being enveloped by the enemy, and succeeded in clearing all his casualties before it was evacuated.

Lieut. (acting Major) **RAYMOND STOWERS.**—For conspicuous gallantry and devotion to duty in command of an advanced dressing station subjected for hours to heavy shelling. He got all cases away in a most expeditious manner. Subsequently, on the near approach of the enemy, he got his personnel and cars away and opened a temporary dressing station elsewhere, and continued to evacuate wounded till ordered to retire. He showed fine devotion to duty.

Capt. **HUGH COMPSON TRUMBLE,** Australian A.M.C.—For conspicuous gallantry and devotion to duty. Under heavy enemy barrage he pushed forward some 600 yards with his medical personnel to a ledge, where by his capable organisation he successfully evacuated quantities of wounded. He worked for three days and nights, and his quiet courage had an excellent effect on wounded and stretcher-bearers alike.

Capt. **CECIL McLAREN WEST.**—For conspicuous gallantry and devotion to duty. On three occasions he went through heavy shell fire to attend casualties in batteries which were under fire, the roads all the time being heavily shelled with high explosives, shrapnel, and gas shells.

Capt. (acting Major) **MAURICE ULICK WILSON.**—For conspicuous gallantry and devotion to duty during an attack. He continually attended wounded at the advanced dressing station, which was constantly under artillery fire (four shells dropped within a few yards of the operating table). The work was continued without cessation, so that 247 cases were evacuated in 38 hours. He showed fine devotion to duty under very difficult circumstances.

OBITUARY OF THE WAR.

KINGSMILL WILLIAMS JONES, M.D., D.P.H. DUB.,

DISTINGUISHED SERVICE ORDER,
CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain K. W. Jones, who was killed in action in Flanders on August 2nd, aged 43 years, was son of the late Percival Jones of Dublin. He was educated at Wesley College and Trinity College, Dublin, where he obtained a mathematical scholarship. He graduated B.A. in 1898, M.B., B.Ch., B.A.O. in 1901, M.A., M.D., and D.P.H. in 1903. After holding some resident appointments he started in private practice in Manchester, where he rapidly created a successful position for himself. Captain Jones was a keen Territorial, and proceeded with his unit, the 18th Field Ambulance, to France in September, 1914, and shortly afterwards became attached as M.O. to the 1st Buffs, with which battalion he was serving at the time of his death. In August, 1915, Captain Jones was wounded at Hooge, and for his gallantry and devotion to duty under fire on that occasion was awarded the D.S.O. In September, 1916, he was very severely wounded at the battle of the Somme, but returned to France again in February, 1917. He rejoined the 1st Buffs in January, 1918, and was badly gassed in May, but returned to his regiment and was killed in action on August 2nd. He refused promotion on more than one occasion in order to remain with his regiment. A colleague who was in intimate association with Captain Jones for many years writes of him :—"In his relationships both with his patients and his medical colleagues he was justly regarded with the highest esteem for professional ability, high standards, and unfailing sympathy with those in trouble. To his friends the sense of loss is very real, for he was a charitable, humorous, and hospitable man, and a 'gentleman unafraid.'"

WILLIAM MARGETSON HEALD, M.R.C.S. ENG.,

LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant W. M. Heald, who died at the Red Cross Hospital, Rouen, on Sept. 8th, aged 24, from wounds received in his aid-post on the Somme on August 22nd, was the only son of the Rev. C. W. Heald, of Chale Rectory, Isle of Wight. He was educated at Marlborough and gained an exhibition at St. John's College, Cambridge, where he graduated B.A. in 1916. He took his M.R.C.S. and L.R.C.P. from St. Bartholomew's Hospital, London, in January, 1918, and held the appointment of junior house physician there till April 7th, when he received his commission in the R.A.M.C. After ten days at Blackpool he sailed for France, where he was attached to a Field Ambulance until a few weeks before his death, when he was appointed M.O. to the Lancashire Fusiliers. His commanding officer writes of Lieutenant Heald as an officer keen and reliable in his work, whose death will be a great loss to his regiment.

WILLIAM MORRIS LANSDALE, M.B., B.S. LOND.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain W. M. Lansdale, who was killed in action in France on August 26th, at the age of 27, was the eldest son of Dr. William Lansdale, of Grove Park, Lee, Kent. He was, as a schoolboy, an accomplished gymnast and swimmer. He entered Guy's Hospital in October, 1909, winning the entrance scholarship in Arts. In 1911 he gained the first proficiency prize and the Wooldridge Memorial prize in Physiology; in 1914 he won the Beaney prize in Pathology, and in the session 1913–14 he was the prize essayist of the Physical Society of Guy's Hospital. He was also one of the presidents of that society. He graduated M.B. and B.S. at the University of London in November, 1914, and at once joined the R.A.M.C. with the rank of lieutenant. A year later he was promoted to the rank of captain, and shortly after became M.O. in charge of the 107th Field Ambulance, with which he went to France in January, 1916. Later on he was for a short time attached as M.O. to a brigade of the R.F.A., and for the last year and a half was M.O. in charge 5th Royal Bucks Regiment. He was killed instantaneously by a shell shortly after telling some of his stretcher-bearers to take cover. The colonel of his regiment writes feelingly of the regard in which he was held by officers and men. A schoolfellow and colleague of Captain Lansdale notes the unassuming modesty with which he carried high academic distinction, and which added charm to his personality.

Captain THOMAS FLECK GRAHAM, C.A.M.C., who died suddenly of cardiac failure on Sept. 20th, at the age of 35 years, was son of Alexander Graham, of Brantford, Ontario. He was born at Guelph, Ont., graduated in medicine at the University of Toronto in 1914, and joined the C.A.M.C. in July, 1916. He served in the Hastings and Seaford districts until April of this year, when he went to France, attached to No. 3 Stationary Hospital. His special abilities led to his employment in resuscitation and wounds of chest cases, and the success he had with blood transfusion, which plays so important a part in the treatment of these cases, was a striking tribute to his skill.

Captain JAMES COTTON FORSYTH, C.A.M.C., who died of wounds at sea on Sept. 8th, aged 47 years, was a native of Mount Bridges. He graduated in medicine at the Western University, London, Ontario, in 1894, joined the C.A.M.C. in April, 1916, and after serving in England for a year was attached to No. 1 Canadian General Hospital in France. He was invalided to England in June, 1918, and died on the voyage back to Canada.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported :—

Lieut.-Col. R. T. Collins, D.S.O., R.A.M.C., killed in action, only son of Dr. E. W. Collins, late of Sydenham, Kent.

Second Lieut. R. L. Norton, Norfolk Regt., killed in action, only son of Dr. J. Norton, of Queen Anne's-gate, London, S.W.

H. Jakins, Queen's Westminster Rifles, died as prisoner of war in Germany, only son of Dr. P. Jakins, of Harley-street, London, W.

Lieut. C. G. Thomson, Somerset Light Infantry, killed in action, only son of Dr. E. B. Thomson, of Plymouth.

Capt. (acting Adjt.) H. G. Powers, M.C., Gurkhas, killed in action, only son of Dr. C. H. Powers, of Westend, Southampton.

Capt. R. H. Knight, Wiltshire Regiment, killed in action, younger son of Dr. A. A. H. Knight, of Lancaster.

THE WAR RECORD OF THE LONDON MEDICAL SCHOOLS: THE FOURTH YEAR OF WAR.

Our inquiry into the war record of the larger metropolitan medical schools has been continued throughout the fourth year of war. Figures for the second and third years were given in THE LANCET of Sept. 23rd, 1916, p. 579, and Sept. 22nd, 1917, p. 479, respectively. The supplementary figures which we now give must be taken as including all those of whom accurate information is available, but it is evidently impossible to keep the record entirely up to date. We may state again here that the deans of all the schools desire to be kept closely informed of the records of their men who are serving in the Navy and Army, and, we must now add, the Royal Air Force. Those schools which have furnished us with returns are given in alphabetical order:—

St. Bartholomew's.—From August 24th, 1917, to August 22nd, 1918, 100 joined the Army and 27 the Navy, making a total of 1918 for the four years. There were: Killed in action, 13; died from wounds, 5; died, 4; wounded, 38; gassed, 1; missing, 2; prisoners of war, 10; repatriated from Germany, 3; interned in Holland from Germany, 1; Mentioned in Despatches, 147. Distinctions: K.C.B., 2; K.C.M.G., 2; K.B.E., 1; C.B.E., 1; C.B., 4; C.M.G., 8; C.I.E., 2; O.B.E., 6; M.B.E., 1; D.S.O., 20; Military Cross, 39; Bar to Military Cross, 1. Promotion for Distinguished Services, 14; Knight of Grace of St. John of Jerusalem, 2; Associate of St. John of Jerusalem, 1; Order of St. Stanislas (3rd Class, with Swords), 1; Order of Kara George (4th Class, with Swords), 1; Cavalier of the Order of the Crown of Italy, 1; Order of Star of Roumania, 4th Class, 1; Order of St. Sava of Serbia (3rd Class), 1, (4th Class), 3; Serbian Red Cross Decoration, 1; Croix de Guerre avec Etoile d'Or, 1; Croix de Guerre, 2; Order of St. Anne, 3rd Class, 1; Albert Medal for saving life, 2; Bronze Medal for saving life at sea, 1; Order of the Nile, 3rd Class, 1; T.D. decoration, 2.

Charing Cross.—The number of past and present students on service, including members of the staff, as far as can be ascertained, is 306. Of these 9 have died on service. The following honours have been gained: K.C.B., 1; K.B.E., 1; Knight, 2; C.B., 2; C.M.G., 3; D.S.O., 5; M.C., 14. Order of St. Sava of Serbia: 2nd Class, 1; 4th Class, 2.

St. George's.—Of more than 400 men who are serving or have served in the present war, 7 have been killed in action, 1 has died of wounds, and 9 have died on active service. Two have been taken prisoner of war, one of whom, Major H. E. Priestley, C.M.G., has been since released. The following honours have been gained: K.C.B., 1; K.C.M.G., 2; C.B., 8; C.M.G., 8; D.S.O., 12; M.C., 18, and two Bars; D.S.C., 1; Order of St. Sava, 4; Croix de Guerre, 2.

King's College.—The completed figures are: Joined, 315; died, 19. Honours: K.C.B., 3; K.C.M.G., 4; K.C.V.O., 1; C.B., 6; C.M.G., 7; Military Cross, 15; Bar to D.S.O., 2; D.S.O., 15; Mentioned in Despatches, 51; Esquire of Order of St. John of Jerusalem, 1; Legion of Honour (Grand Officier), 1; Commandeur de l'Ordre de Léopold, 2; Croix de Guerre (Belgian), 1; Order of the Sacred Treasure (Japanese), 1; Order of St. Sava (Serbian), 1.

London Hospital Medical College.—The completed figures are: Joined, 1470; killed, 96. Honours: G.C.V.O., 1; K.C.B., 1; K.C.V.O., 2; K.B.E., 3; D.B.E., 1; Knighthood, 1; C.B., 5; C.M.G., 9; C.B.E., 3; Companions of Honour, 3; D.S.O., 32; D.S.C., 4; 2nd Bar to Military Cross, 2; Bar to Military Cross, 4; Military Cross, 112: Military Medal, 2; Order of St. John of Jerusalem, 4; Hon. Associates of the Order of St. John of Jerusalem, 2; Légion d'Honneur, Croix de Chevalier, 2; Croix de Guerre, 1; Order of Crown of Italy, 1; Order of St. Anne (3rd Class, with Swords), 2; St. George's Medal, 1; Order of St. Vladimir, 1; Chev. de l'Ordre de Léopold et Croix de Guerre, 1, and L'Ordre de la Couronne, 2 (both conferred by King of Belgians); Order of the White Eagle, 1; Order of St. Sava, 5th Class (conferred by King of Serbia), 1; Jutland Bank Battle Despatch: Commended, 1; recommended, 3; Mentioned in Despatches, 45.

London (Royal Free Hospital) School of Medicine for Women.—Honours have been conferred on former students during the past year as follow: C.B.E., 5; O.B.E., 1; M.B.E., 3; Cross of the Legion of Honour, 1.

St. Mary's.—The completed figures are: Joined, 600; died, 38; wounded, 37; prisoners or missing, 16 (of whom 5 have been repatriated). Honours: C.B., 6; C.M.G., 7; M.C., 26; D.S.O., 19; C.V.O., 2; O.B.E., 2; Order of the White Eagle, 4th Class (with Swords), Serbian, 2; Ordre de la Couronne (conferred by the King of the Belgians), 1; Légion d'Honneur (Croix de Guerre) (conferred by the President of the French Republic), 1; Order of St. Sava, 5th Class (Serbian), 1; Order of the Nile (conferred by the Sultan of Egypt), 1; Silver Medal for Valour (Italian), 1; Mentioned in Despatches, 128.

Middlesex.—The completed figures are: Joined, upwards of 500; died, 30. Honours (known): 46.

St. Thomas's.—The completed list up to Sept. 28th is as follows: Joined, 1115; died, 57. Honours: V.C., 1; G.C.M.G., 1; K.C.B., 1; K.C.M.G., 3; C.B., 5; C.M.G., 15; D.S.O., 25; D.S.C., 1; M.C., 49 and 4 Bars to M.C.; C.I.E., 3. Mentioned in Despatches and for valuable service: 158 men, 224 times. The Foreign Honours include: French, 12; Serbian, 7; Belgian, 3; Egyptian, 6; the Order of the Hospital of St. John of Jerusalem, 5. And 12 have been among the promotions in, and appointments to, the Order of the British Empire for services rendered in connexion with the war.

University College Hospital.—Since the commencement of the war the number of past and present students who have joined the Navy and Army is 702, and the number of deaths have been 29. The following distinctions have been gained: K.C.M.G., 1; C.M.G., 16; C.B., 4; D.S.O. (Bar 1), 17; V.C. (Clasp), 1; Legion of Honour (Croix de Commandeur), 1; Croix de Guerre, 3; Military Cross (Bar 3, Second Bar 1), 31; Mentioned in Despatches (20 twice, 5 three times), 129; Order of the White Eagle, 4th Class, with Swords (Russian), 1; Order of St. Stanislas, 2nd Class, with Swords (Russian), 1; Order of St. Stanislas, 3rd Class, with Swords (Russian), 1; Order of St. Sava, 3rd Class (Serbian), 1.

NEW HOSPITAL FOR SHELL SHOCK CASES.—A new hospital for discharged neurasthenic sailors and soldiers has been opened at Bray Court, Maidenhead. The management of the institution has been placed by the Ministry of Pensions in the hands of the National Hospital for the Paralysed and Epileptic, Queen-square, London, W.C., which is the largest and oldest hospital for the treatment of the many diseases of the nervous system. At present accommodation for the treatment of 50 patients has been provided. Within the large building, outbuildings, and extensive grounds there is ample room for arrangements for re-education and teaching of suitable trades.

SCOTTISH WOMEN'S HOSPITALS FOR HOME AND FOREIGN SERVICE.—The London units, under the London Society of the National Union of Women's Suffrage Societies, are appealing for funds to meet the increased drain on the resources in Macedonia, which continues, although the fighting is now happily at an end. Medical and surgical stores need constant renewal. Contributions should be sent to Lady Cowdray or Miss T. Gosse at 66, Victoria-street, S.W. 1.—Dr. Elinor Rendel has gone out to Macedonia as junior surgeon to the Elsie Inglis unit of the Scottish Women's Hospitals. This unit was the only field hospital attached to the Jugo-Slav Division during the Franco-Serbian offensive. The hospital camp was, when the last news came through, at Dragomantsi, north of Vodena, and a month ago a new station, served by motor ambulances, was established still nearer to the front. Miss Rendel has already seen active service. She was still a student at the London School of Medicine when she went out to Russia in August, 1916, with Dr. Elsie Inglis. As dresser and X ray assistant she worked on the Russo-Roumanian front, and gained a great deal of campaigning experience before she returned to complete her studies.

THE LATE DR. JAMES HAMILTON.—James Hamilton died on Sept. 24th at his residence, Chapel Hill House, Huddersfield. He was the youngest son of the late Rev. William Hamilton, of Omagh, co. Tyrone, and a brother-in-law of Mr. James Ross, Senior Inspector of National Schools, Shantallow, Londonderry. He studied at Queen's College, Galway, the Carmichael Medical School, Dublin, and Glasgow, graduating M.D., B.Ch., B.A.O. of the Royal University in 1889. For some time he practised in Leeds, where his professional skill and kindly qualities gained him the respect of patients and colleagues.

SIMPLE FIRE PRECAUTIONS FOR THE COMING WINTER.—The British Fire Prevention Committee issues its timely reminder of the principal safeguards against fire in the form of a small poster (No. 32), which will be sent gratuitously to anyone who applies to the committee in writing, enclosing an addressed and stamped envelope. In many households the head of the family is now serving with the colours or away on war work, and the matter of fire precautions in the household is therefore left in less experienced hands. Heating and lighting arrangements are now being overhauled in many establishments with the view of economy for the coming winter, and the safeguards on which the committee lays stress can be attended to at the same time. The address of the British Fire Prevention Committee is 8, Waterloo-place, London, S.W. 1.

Correspondence.

"Audi alteram partem."

HYPNOSIS IN HYSTERIA.

To the Editor of THE LANCET.

SIR,—Both Major W. Brown and Captain J. R. O'Brien raise an interesting point in discussing the rôle of hypnosis in hysterical people, the former when he states that "only hysterical patients can be hypnotised," and the latter when he takes exception to this on the ground that "80 per cent. of all mankind can be hypnotised." The essential point to be realised is, that the factor in hysteria that lends itself to hypnotism is suggestibility, and this factor is present in all mankind, though in varying degrees. Given a defective environment during upbringing—defective as far as the environment in which the child when grown up will have to live and work—then there is liable to be a lack of emotional control and an associated high degree of suggestibility which in the course of time is likely to give rise to obtrusive hysterical symptoms. In the educated adult who has been correctly orientated there is a considerable degree of emotional control, and suggestibility, though present, is of low intensity. But it is present, and in that such a man is emotional and is suggestible at all he has the factors of hysteria present. In other words, all human beings are hysterical to a certain extent, in that they are human. But in only a few people, comparatively speaking, do the emotions through lack of control, and suggestibility through its intensity, manifest symptoms in a manner necessitating medical treatment, and in such people no new factors are being encountered, but factors which, present in all, are intense in some only. So that it is not that only hysterical patients can be hypnotised so much as that hysterical patients are *easily* hypnotised; people who have not manifested hysterical symptoms, being less suggestible, are less easily hypnotised. But, as Captain O'Brien's statistics go to show, the great majority of men can be hypnotised in some way or another.

If Major Brown had said "only hysterical *people* can be hypnotised" there would have been no incompatibility between his statement and Captain O'Brien's; the majority of mankind, though having all the factors of hysteria, go through their lives without showing obtrusive symptoms, and so without their coming under medical treatment.

The value of hypnotism in hysterical patients is, in my opinion, open to doubt, for in such cases there is a degree of suggestibility that has proved itself to be morbid, and in playing on this suggestibility there is a possible risk of increasing its intensity; by so doing the patient, though relieved of his symptoms, may be left more hysterical at the end of treatment than at its inception. The rational method is surely not the empirical method of suggestion from without, which in addition to the above objection has the further drawback of the liability to relapse, but the resolution of the symptoms through the patient's own consciousness, a very much harder method but one which is more liable to be permanent as far as those particular symptoms are concerned.

In his letter in THE LANCET of Sept. 28th Major Brown admits the risk of making a hysterical patient more hysterical as a result of hypnosis, and the methods of hypnotism that he himself employs are undoubtedly directed towards a lessening of this risk. But still the essential fact is unaltered; in any case that has been hypnotised the suggestibility previously possessed by the patient, and active in the genesis of his hysterical symptoms, has been picked out and utilised by this method, and however carefully the operator may have brought the patient out of the hypnotic state the very fact that the morbid dissociation has been resynthesised at all indicates a reactivation of this already morbid degree of suggestibility, and is therefore to be deprecated. It is noticeable that the modifications used by Major Brown in the process of hypnosis are directed to the end of an appeal to the patient's own consciousness and a lessening of the purely hypnotic suggestion. The more successfully this is carried out the more satisfactory will be the result, until the ideal will be attained and the hypnotic element completely eliminated.—I am, Sir, yours faithfully,

DONALD E. CORE,
Captain, R.A.M.C. (T.F.).

Manchester, Oct. 1st, 1918.

THE PROPHYLAXIS OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—Long discussion following Sir Bryan Donkin's letters early last year showed that there are now a number of medical men who have the courage to advocate the abandonment of the neglect of this the most potent weapon against the spread of venereal diseases; but it is not clear that any very active steps have yet been taken by the medical profession in this direction. Unless the present golden opportunity is utilised of making these simple antiseptic methods generally known, the end of the war is certain to cause venereal diseases to be more widespread than ever, as after many previous wars. On the other hand, if all the Army could be instructed regarding the prophylaxis against venereal diseases this life- and health-saving knowledge will become widely diffused among the general population on demobilisation, and a great reduction, instead of an increase, of the scourge will be effected.

Really the case for adopting these prophylactic measures may be briefly summarised in the following propositions: 1. Venereal diseases are causing a most serious loss of manpower at a crisis in our national history, as shown by the statement of the Under Secretary for War that no less than 54,884 soldiers were admitted to hospital for these diseases in 1917 alone, while many innocent women and children will certainly be infected after the war. 2. The use of Metchnikoff's 30 per cent. calomel ointment before and after exposure to infection and of a 1 in 2000 solution of permanganate of potash for washing after exposure have been proved to greatly reduce venereal infection by the experience of the United States Navy and that recorded by Dr. G. Archdall Reid in THE LANCET of Nov. 3rd, 1917. The recent figures of Rigg relating to several thousand exposures showed that only 0·08 per cent. of infections occurred after disinfection within one hour, 0·65 per cent. after from two to four hours, but 7·80 per cent. after over ten hours, or a reduction of nearly 99 per cent. by very early disinfection. 3. The question is essentially a medical one, and the fact that a single innocent child can be saved from suffering from the most serious and deadly of these diseases to my mind far outweighs any moral arguments against placing prophylaxis against these affections on the same footing as those against all other infectious diseases, while the following plain statement regarding syphilis of Professor Sir William Osler, "Get people to realise that it is a great communicable disease, two-thirds of the victims of which are innocent, and much will be done to break down the present barrier of ignorance and false sentiment," is, I think, unanswerable.

I therefore strongly urge that the greatest national service the medical profession can render at the present time is to form an active society (unless such already exists) to adopt the plan of the committee of medical men in Victoria[1] when the Victorian Government hesitated in the matter—namely, to publish and distribute widely a pamphlet, in which it is first clearly set forth that sexual incontinence is totally unnecessary and best avoided altogether; but that in the case of everyone who fails to be continent it is their duty to the nation, to themselves, and to possible future innocent victims of their errors immediately to use the simple means of disinfection set forth in the pamphlet to diminish the chances of their becoming infected, although they must remember that it is not an absolute preventive and will not make them completely safe against the penalties of their offences against morality. If every soldier returning to Great Britain, either on leave or eventually on demobilisation, is given such a pamphlet an immense amount of disease, and subsequent infection of innocent women and children, will be avoided, and the reproach recently levelled by certain colonial troops against London as "the plague spot of the world" may be partially removed.

As action rather than discussion is now urgently needed, and the writer is not in a position to take an active part in such a crusade, I shall be glad to contribute through you, Sir, to any society or body of medical men who will undertake early action, beginning in London, on some such lines as the above, the sum of £100 towards the expenses of the propaganda. To show that I have some qualifications for expressing an opinion on the matter, I subscribe myself

M.D., F.R.C.P., F.R.S.

Sept. 28th, 1918.

[1] See THE LANCET, March 17th, 1917, p. 424.

MEDICAL CERTIFICATES PRIOR TO MARRIAGE AND VENEREAL DISEASES.

To the Editor of THE LANCET.

SIR,—Recently I attended a conference of the Yorks County Branch of the National Council for Combating Venereal Diseases. At this meeting, which was addressed, amongst others, by a Mrs. Pendlebury, who is, I understand, an organiser of the National Council, one statement was made which is of such importance that I now bring it before your readers' notice—namely, that it was part and parcel of the National Council's campaign against venereal diseases to urge the policy of compulsory medical examination of both parties prior to their entering into a marriage contract, for this is what medical certification means when stripped of all verbiage.

I think, Sir, the public are entitled to an authoritative statement from the National Council on this part of their programme.—I am, Sir, yours faithfully,

A. B. DUNNE, M.B., B.C. Cantab., &c.

Doncaster, Sept. 25th, 1918.

* * We are informed by the General Secretary of the National Council for Combating Venereal Diseases that though the Council has, up to the present, passed no resolution advocating legislation on the subject of health certificates before marriage, it recommends its speakers, in general terms, to set forth the advisability of parents making inquiries as to the health of the intended partner in marriage.—ED. L.

CHRONIC INTESTINAL STASIS.

To the Editor of THE LANCET.

SIR,—In his instructive and suggestive paper on this subject which appeared in your issue of Sept. 28th, Sir W. Arbuthnot Lane carries his teaching a step further. We are now able to appreciate the effects of chronic intestinal stasis not only clinically, but even microscopically. The clinical manifestations which he originally described are now generally recognised, and for the most part are attributed to their undoubted cause. The present paper is the logical outcome of what he has already taught, and he will not be surprised if, in common with its predecessors, portions of it are "received with ridicule": for logic thrives badly in an atmosphere of jealousy. We are now in a position to estimate all or nearly all the pathological miseries which follow in the train of chronic intestinal stasis, but we are not, it seems, very much nearer the goal of all this excellent work of Sir W. Arbuthnot Lane—namely, the prevention of the condition the causes and consequences of which he describes so graphically. The *causa causans* is the upright posture, leading to the development of supporting bands which produce festooning of the transverse colon and other forms of obstruction. An obvious remedy, therefore, would be for man to revert to the posture and gait of his quadruped ancestors, a reversion which in many cases—those, for example, of Sir W. Arbuthnot Lane's detractors—would be eminently suited to their intellectual capacities.

Another lesson which we might profitably learn from a consideration of the said quadrupeds is that the damnable heritage of the colon would be infinitely less damnable if we treated ours as they treated theirs. They treated theirs to long periods of complete rest; not from religiosity, nor from diabetes, but from necessity. They went for several days without food. We never do. In us, the jejunum is said to be always empty; the ileum never. And the ileum is never empty because its contents are ponded back by the accumulation at the cæcum and onwards. If, therefore, man will not return to four-footedness and would avoid intestinal stasis he must fast. But he won't; nothing will induce him to. When his whole intestinal canal is screaming for repose he responds by giving it, in accordance with the highest medical advice, beef-tea at 11 and Benger at bedtime. Moses was a great sanitarian; but he appointed only one day of atonement by fasting in the year. If the new Ministry of Health would appoint at least 52, and enforce them, it would bring Sir W. Arbuthnot Lane's teaching to brilliant fruition.

I am, Sir, yours faithfully,

Harley-street, W., Sept. 30th, 1918. LEONARD WILLIAMS.

To the Editor of THE LANCET.

SIR,—If comment be permitted upon Sir W. Arbuthnot Lane's remarks on the above subject, I should like to point out that, whatever other factors contribute to the induction of intestinal stasis, the most important one has been omitted from his paper. It may be that he does not consider it of primary importance but only a minor concomitant. Subacute chronic inflammation of some portion of the alimentary tract, set up by some infection, precedes the stasis. The provocative bacteria, varying in different cases, are generally those against which the patient has inherited a poor resistance, or his blood may have lost some of its normal bactericidal power through depressing agents—e.g., sedentary habits, bad air, worry, improper feeding, &c. The muscular coat of the intestine grows torpid, œdematous through infiltration from the adjacent sodden mucous membrane, or in obedience to inhibiting stimuli from the nerve-centres—Nature's effort to avoid the pain of irregular peristalsis in the inflamed areas.

I have examined many specimens of intestinal mucus obtained by colon-irrigation from cases of stasis to ascertain their bacterial flora, generally for the purpose of getting a clue to some arthritic trouble. The commoner catarrhal bacteria (capsulated streptococci, staphylococci, *B. mucosus capsulatus*, influenza-like bacilli, pneumococci, enterococci, &c.) have been most frequent and numerous, often equalling the coli group in numbers. Where inoculation treatment has been successfully applied one interesting incident has often been reported to me. Some cases of most inveterate constipation, of almost lifelong duration, have been replaced by normal action of the bowels. Apart, then, from congenital defects, I honestly believe that stasis arises from causes outside the province of the surgeon, and should not be submitted to his anatomical readjustments until milder measures have been well and thoroughly tried.

I am, Sir, yours faithfully,

Bentinck-street, W., Sept. 28th, 1918. H. LYON-SMITH.

DRUG IDIOSYNCRASY.

To the Editor of THE LANCET.

SIR,—The following case of drug idiosyncrasy is perhaps worth recording:—

The patient, a baker's assistant, female, about 23, strong and well nourished, came into an institution last October in a "stuporous" condition. In 48 hours she showed intelligence and reported like attacks at intervals for the past six months, dating apparently from an air raid. There was marked constipation. Among other things she was put on a potassium bromide mixture, 10 grains to the ounce, t.d.s. On the second morning she had developed a profuse roseolar rash. The bromide was discontinued, with disappearance of the rash the following morning. She was tried with strychnine and belladonna, but responded satisfactorily only to enemas. The morning following the administration of belladonna another rash, mainly on the chest and extensor aspects, was observed, differing, however, from the first rash. On this drug being dropped, the second rash disappeared within 24 hours. I was then away for a day or two when by some inadvertence the patient, who had relapsed into her stuporous condition, was again put on bromides, with the rapid supervention in a few hours of a third skin manifestation. I stopped the bromides and the rash went away within 24 hours.

As this patient had been treated with soap enemas with some success, I incline to the view that the rashes were drug rashes, for when she was given a simple tonic and rest in bed no further skin manifestations occurred, and she was discharged in about ten days after the last one had been observed. The seizures were not definitely epileptiform.

I am, Sir, yours faithfully,

T. S. GREENAWAY, M.R.C.S., L.R.C.P.

London, W., Sept. 26th, 1918.

THE FUTURE OF THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—No one who knows Professor Benjamin Moore and Mr. Charles Parker can doubt their high aim in endeavouring to eliminate undesirable competition amongst professional men by the introduction of a whole-time salaried service. Those of us who are in daily touch with general practitioners fail, however, to recognise as true to life the picture these idealists have drawn for themselves of our profession as a jostling crowd of men with strong muscles and plausible tongues struggling for patients and fees. If there is a small minority of evil-doers who take advantage of existing opportunities for greedy advancement our con-

tention is that these evil instincts will not be abolished or their owners be deprived of opportunities of using them by the revolution of our system of remuneration which is proposed by the State Medical Service Association. Robust health and plausible tongues would still enable the unscrupulous amongst the salaried officials set up under the proposed scheme to gain promotion at the expense of men with better brains and more delicate consciences. Is not a higher salary a "direct personal pecuniary gain"? Do all the better-paid posts in the Army and the Church fall to the men of brain and conscience? Have plausible tongues no influence on promotion in the Civil Service or in the world of politics?

If the State Medical Service Association wishes to convert the public and the profession to the idea of a whole-time salaried service of medical practitioners it must find a more convincing argument than that thereby undesirable competition will be eliminated. The public must be convinced that it will be better served by salaried medical officers; the profession must be shown that it will have greater opportunities of freely exercising its beneficent functions. Neither the public nor the profession is, I believe, satisfied on these points by any arguments at present put forward.

I am, Sir, yours faithfully,

Sept. 20th, 1918. LAURISTON E. SHAW.

THE MANAGEMENT OF LUNACY PATIENTS.

To the Editor of THE LANCET.

SIR,—In criticism of Dr. Lionel Weatherly's statements concerning medicinal treatment in rate-supported mental hospitals, may I point out that, first, it is not an acknowledged fact, nor is it a fact at all, that illness is more rife amongst the insane than among the general population. There is, indeed, a large group of diseases which is responsible for most of the illness in the general population, from which mental patients are practically immune, which easily more than outweighs that group to which they are specially prone. Secondly, assuming that 4*s.* 4*d.* is the average amount per patient per annum spent on the item "surgery" in the maintenance account (and in many cases it is much more), this is a very much larger sum than is spent on the corresponding item under the Insurance Act, which shows how generously and well these patients are treated in comparison with the general public of the same class; and on a comparison of the average number on the sick list in a public mental hospital with the average number on the sick list of the panel doctor it would appear that the mental hospital still holds its own. I think it is quite clear from statements in Dr. Weatherly's letter and brochure that he is not familiar with the amount of honest and earnest work being done in these institutions (which he is so desirous of abusing), without display, publicity, or the stimulus of popular favour.

There are many points in Dr. Weatherly's book with which all of us must agree, but on this point we can only regret that he has gone out of his way to present to the public a picture which can do nothing but harm, and is contrary to the true condition. Unfortunately, that which is contrary to the truth has got the start.

I am, Sir, yours faithfully,

JAMES R. WHITWELL.

St. Audry's Hospital, Melton, Suffolk, Sept. 25th, 1918.

To the Editor of THE LANCET.

SIR,—I have just read with much interest Dr. Lionel Weatherly's book, "A Plea for the Insane." In vigorous and uncompromising style he trounces laws, public authorities, and individuals in a way that is quite agreeable to read—to those, at any rate, who agree with him. But better than this, he makes many valuable suggestions for the reform of the law and procedure involved in the care of the insane, and he also criticises the present-day treatment. Coming from a man of his experience and astuteness, these suggestions must carry weight; and as one who, like most practitioners, has practical interest in these matters, I should like to bring forward at the present time some points which appear to me to be of particularly practical importance, especially now that the reform of the education and practice of our profession is in the front of the background.

First of all, as to the early diagnosis of cases. I am, of course, only speaking for myself as a general practitioner, but I think from what I know of the views of others that I am not alone in my opinion. Our great difficulty is the recognition of the very earliest stages of mental disease. In any disease this is often a difficult matter and one which faces the general practitioner more than any other member of the profession. In mental disease early recognition is of vast importance, and failure to recognise in due time may easily have disastrous effects. We, with our opportunities as family practitioners, ought to be able to recognise mental disease early, but our difficulty, I am afraid, arises from want of sufficient training. I feel quite sure that we do not, in the early days of our medical life, give nearly sufficient attention to this branch of our work, and I hope that when the medical service of the country is reorganised opportunities will be provided for post-graduate study at special mental hospitals or clinics. But we have still another difficulty in diagnosis, and that is the finding of a suitable consultant. This arises partly because the public have an idea that when an alienist is called into consultation he is almost sure to recommend the patient to be removed to an asylum, just in the same way as they are afraid to have a surgeon called in for fear that he may recommend an operation; and partly also our difficulty is that consultants who are at the same time mental specialists and general physicians are few and far between. I have the very highest regard for many of the specialists in this department, whom it is my privilege to know, but I cannot get away from the feeling that there is a tendency amongst them to specialise too much; and this partly, I think, because they specialise too soon. A not long qualified man takes a post as assistant at an asylum. In time to come he is senior assistant, superintendent, and then consultant. I always have contended that a specialist ought to be evolved, not created, and the first stage in his process of evolution should be five or six years of general practice. It may seem a long time, but I do not think too long. There is no doubt that not only is the general practitioner too ignorant of the symptoms and treatment of mental diseases, but the asylum medical officer is apt, at any rate, to be equally ignorant of the treatment of many of the diseases from which his patients suffer. This has, on various occasions, been painfully brought to my notice. I think it arises, not only from want of sufficient experience in general practice, but from a system of routine and organisation fatal to individualism, originality, and enthusiasm.

Having made our diagnosis, our next difficulty is the finding of a suitable place for treatment. The ordinary nursing home, which has unfortunately come to be much abused, not only by neurologists but by all sorts of medical men, is, as Dr. Weatherly so plainly points out, quite unsuitable—not only unsuitable but positively injurious. I have known cases put into nursing homes, and there become certifiable, which had they only been in proper surroundings would in all probability never have arrived at such a deplorable state. The recognised institutions provided for this purpose are too few to be generally available, and personally I have experienced great difficulty in finding a suitable private house to which to send early cases with advantage to the patient. Too many of them are run purely as financial undertakings; and again, for the majority of one's patients—the great majority—the cost of these single houses is much too heavy. The result only too often is that the case drifts on until it becomes certifiable. Would it not be possible to have an official list of suitable houses to which medical men could refer? Nothing can be more distressing to a medical man than to watch a case that he feels sure with proper treatment would probably get well, being allowed, for want of suitable means of treatment, to drift on until it gets into the land of the certified, from which few return without some trace of their sojourn.

How long are patients and their friends and relations, not to mention their medical attendants, to be tortured and worried for want of a simple alteration in the law which would allow of notification as well as certification? The remedy is so simple, and the difficulty so negligible, that it seems to me extraordinary that the public and the profession should so long have put up with the want of it. I hope that Dr. Weatherly's powerful plea for this reform will not be long in having effect.

I am, Sir, yours faithfully,

Bradford-on-Avon, Sept. 18th, 1918. CHAS. E. S. FLEMMING.

MANGANESE POISONING.

To the Editor of THE LANCET.

SIR,—With reference to the letter of Dr. James Gairdner in your issue of Sept. 28th with the above title, and in view of the extensive use of colloidal manganese at the present time by intramuscular injection in furunculosis, acne, eczema, gonorrhœa, and generalised systemic infections, we should like to point out that in the colloid state manganese is for all practical purposes non-toxic.

Before submitting samples to the medical profession for clinical use physiological experiments were undertaken by Professor R. Tanner Hewlett, of King's College, who in July, 1918, found that 11 c.cm. of collosol manganese injected intravenously into a rabbit weighing 2 kg. produced no ill-effect. The dose found by clinical experience to produce best results is 0·5 c.cm. to 1·5 c.cm., and reports (as already mentioned by Sir Malcolm Morris and other practitioners in the medical journals) almost invariably show marked constitutional improvement after the injections.

The work of many investigators (Bertrand, Perrin, and others) seems to show that colloidal manganese acts as a peroxidase. Over-stimulation of the oxidase system is, of course, to be avoided and, if we might venture to offer a suggestion, the dosage ascertained by practical experience should be adhered to, though in the symptoms of mustard gas poisoning as much as 3 c.cm. is clinically advised.

I am, Sir, yours faithfully,

J. F. WARD,
Manager, The Crookes Laboratories.

50, Elgin-crescent, W., Sept. 30th, 1918.

METHODS OF CONTROL OF FRAGMENTS IN GUNSHOT WOUNDS OF THE JAW.

To the Editor of THE LANCET.

SIR,—I am gratified to know that Mr. C. H. Bubb, in his letter in your issue of Sept. 28th, agrees in the main with the methods I described in my communication to THE LANCET of Sept. 7th. With regard to the points on which Mr. Bubb disagrees with me, I would say: (*a*) The four-tail bandage, correctly applied, I only advocate as a "*first aid*" method. This, I think, I made clear. (*b*) To suggest that any bandage, webbing, elastic or otherwise, could possibly do what a screw lever splint does, only shows that your correspondent is not familiar with the splint. The screw lever splint exerts a *forward* pressure, opposes the action of the depressor muscles, and yet permits of free function of the jaw—things which no kind of bandage could possibly do. (*c*) The "perforating bolt and nuts" for symphysis fractures is introduced posterior to the infected area, and was designed with the precise object of leaving the latter area entirely free from any apparatus whatever. The bolt does not perforate the buccal cavity, as his circumferential wires *do*, and the operation is done entirely aseptically—points which Mr. Bubb evidently failed to grasp. (*d*) Mr. Bubb is surprised that I made no reference to the "open-bite" method of splinting; but I regard it as unsound and never use it, and the communication only dealt with my own methods—methods which I believe to be original.

I am, Sir, yours faithfully,

Frognal, Sidcup, Oct. 1st, 1918. H. P. PICKERILL.

THE death occurred of Clara Hind, L.R.C.S., L.R.C.P.E., of Ockley Sanatorium, on Sept. 15th. She commenced her career as a nurse and was some years at Nottingham, when she obtained her full training in medical and surgical nursing. She then trained in midwifery, getting the L.O.S. certificate. Later she was appointed matron of the Clapham Maternity Hospital, which post she held for five years, when she entered as a medical student at the London School of Medicine for Women and the Royal Free Hospital. She qualified in 1901, and then devoted herself especially to the open-air treatment of phthisis. She was appointed resident physician to Rudgwick Sanatorium, and later founded the sanatorium at Ockley, which she managed for 15 years. Her twofold training as doctor and nurse made her most fitted for such work, and her sudden death is a loss to preventive medicine in her specialty. Her help in the training of women medical students, midwives, and nurses in midwifery was invaluable. She never lost touch with the Clapham Maternity Hospital, and later became a physician to out-patients, and also a trusted and valued member of the committee, by whom her loss will be deeply felt.

THE SERVICES.

INDIAN MEDICAL SERVICE.

Temporary I.M.S. Officers.—It has recently been decided that certain classes of temporary officers of the Indian Medical Service may re-engage under the terms of the Army Department letter of Feb. 9th, 1915, provided they have been continuously employed since their first appointment. These classes are: (*a*) Those who were engaged by the Director General, Indian Medical Service, for service overseas prior to the issue of the letter quoted above, as well as those engaged under the terms of that letter; (*b*) those who were engaged by the Bombay Relief Fund for service in Egypt, and subsequently re-engaged by the Government of India. The officers referred to above should accordingly be paid at the rate of 24*s.* per diem, whether serving in India or overseas.

Indian Defence Force Medical Corps.—The Indian Defence Force Medical Corps has just been created. Persons holding the following medical and surgical qualifications may be granted commissions: (*a*) Registrable in the United Kingdom; (*b*) L.M.S. Madras; (*c*) Membership of State Medical Faculty, Bengal; (*d*) Memberships of College of Physicians and Surgeons of Bombay; (*e*) American diplomas, the courses of study for which are recognised by the General Medical Council. Commissions in the I.D.F.M.C. will be governed by the regulations applying to commissions in the I.D.F. generally so far as they are applicable. Commissions in the I.D.F. may be on the General Service or Local Service List. Officers on the General Service List will be required to serve in any part of India. Officers on the Local Service List will be required to serve in one locality only. Officers of the I.D.F.M.C. will be granted the following substantive ranks: Lieutenant on first appointment, Captain after three years' service, Major after 12 years' service, and Lieutenant-Colonel after 20 years' service. Each step in promotion will only be granted if recommended by the officer commanding. Service as medical officer of Volunteer units will count for the purpose of this Regulation as service in the I.D.F.M.C. Officers of the I.D.F.M.C. will be placed under the orders of officers commanding station hospitals where such hospitals exist. At stations where there are no station hospitals they will be attached to units of the I.D.F. If not attached to a unit of the I.D.F. officers of the I.D.F.M.C. will be on the Supernumerary List.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg. R. E. R. Burn, who has been invalided on account of ill-health contracted in the Service, retains his rank.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. G. J. A. Ormsby relinquishes the temporary rank of Colonel on re-posting.

The undermentioned relinquish the acting rank of Lieutenant-Colonel on re-posting: Major E. B. Booth, Temp. Capt. H. Faulkner.

To be acting Lieutenant-Colonels whilst in command of a Medical Unit: Major M. F. Grant, Capt. (acting Major) E. Phillips.

Temp. Capt. A. N. Bruce to be acting Lieutenant-Colonel whilst specially employed.

Temp. Capt. L. Leslie relinquishes the acting rank of Major on re-posting.

To be acting Majors: Capt. D. Bell; Temp. Capts. O. J. Day, W. L. Lyall, J. D. Cooke, M. Fitzmaurice-Kelly, G. G. Anderson, J. R. Davies.

Temp. Capt. E. L. Warner, Canadian A.M.C., to be temporary Major.

Temporary Lieutenants to be temporary Captains: J. Martin, J. B. Wilkie, D. Young, M. B. Reichwald, H. L. Pearson, C. F. Curtis, T. Craig, D. M. Cox, J. S. Crichton, D. T. Evans, H. Graham, S. A. Furlong, M. Dockrell, S. M. Vassallo, G. W. B. Shaw, H. H. Molloy, G. M. Grundy, R. G. Meyer, F. W. Emery, F. M. H. Sanderson, L. E. C. Handson, E. G. Hodgson, H. Farncombe, A. E. Clark, C. W. Coghlan, H. D. Pollard.

To be temporary Captains: G. B. Wilkinson, H. McKinnon (Canadian A.M.C.), E. A. Aylward, W. J. Woodman late Captain, R.A.M.C., T.F.), W. G. Lidderdale, E. S. Holloway, B. Beamish, S. L. Haslett, F. M. Harvey, J. F. Bullar, A. S. Allan, W. Hughes, P. Daly, L. J. Hood.

To be temporary Honorary Captains: S. J. Cattley and J. R. Taylor.

To be temp. Hon. Lieutenants: F. A. Georger and B. D. Brooker.

Late temporary Captains granted the honorary rank of Captain: E. A. Pearson, E. G. H. Weir, and A. M. J. Halligan.

To be temporary Lieutenants: D. H. Vickery, T. M. Richardson, L. Milburn, W. Bligh, S. F. Breakly, H. T. O'Neill, C. H. Lee, R. Lawrence, W. A. Mein, J. Black, A. D. Pringle, H. R. F. Towne, A. I. Girdwood, F. Aitken, R. M. Moore, L. N. H. Biggs, H. C. Sutton, H. Abernethy, W. K. Anderson, C. Blake, E. S. Verdon, S. Wilton, C. R. Kidd, A. I. Aylmer, E. W. Sharp, J. G. Louden, A. Macintyre.

Officers relinquishing their commissions:—Temporary Captains granted the honorary rank of Captain: T. C. Pocock (on account of ill-health contracted on active service), S. C. Westwood, T. W. Bailey (on account of ill-health), C. A. Wickham, J. W. Wayte (on account of ill-health caused by wounds); Temp. Capts. F. H. Cooke, W. H. Parsons, A. G. Graham, S. C. Shanks, P. Daly, F. J. McCarthy, A. D. Howard, W. E. Peck, B. H. Swift, J. F. Allen, C. Wace, T. S. S. Holmes, T. E. Parker, F. S. Noble, H. O'Neill, R. McCaffrey, A. P. Woolright, F. L. McKinnon, J. H. Mayston; Temp. Lieuts. T. E. Lister, F. W. Chesnaye, H. Leach, W. H. Woodyer, P. T. J. O'Farrell, A. Rogers, G. Burnett, K. D. Marriner, C. L. Birmingham, T. C. D. Cathcart; Temp. Hon. Lieut. C. E. Fearn (on account of ill-health, and is granted the honorary rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Lieut. D. J. Valentine to be acting Major.

Capt. N. M. Lewis relinquishes his commission on account of ill-health, and is granted the honorary rank of Lieutenant.

Capt. E. J. Bradley relinquishes the acting rank of Major on re-posting.

To be Lieutenants: R. B. MacGregor (from Edinburgh University Contingent, O.T.C.); J. F. Cunningham, W. H. Duff, A. K. I. Jones (from University of London Contingent, O.T.C.); A. M. Dugan (from Aberdeen University Contingent, O.T.C.); W. A. Hewitson (from Durham University Contingent, O.T.C.); G. R. Baxter (from Leeds University Contingent, O.T.C.); J. M. Macpherson, A. M. Davidson; and N. B. Peacock, W. Napier, A. S. Goudie, J. W. Mackay, J. B. Potter, W. Scotland, D. Finlayson, F. K. MacMillan (from Glasgow University Contingent, O.T.C.).

TERRITORIAL FORCE.

Major T. Duncan relinquishes his commission on account of ill-health, and is granted the honorary rank of Major.

Captains to be acting Majors whilst specially employed: A. L. Sharpin, G. B. Pritchard, G. H. Dominy, H. Connop, J. Walker, W. A. Campbell.

Capts. (acting Majors) C. S. P. Black and P. S. Martin relinquish their acting rank on ceasing to be specially employed.

Capt. W. Duncan to be acting Lieutenant-Colonel whilst specially employed.

Major F. G. Bushnell and Capt. C. N. Chadborn are seconded for duty overseas.

Capt. R. Richards is restored to the establishment.

Capt. (Brevet Major, temporary Lieut.-Col.) C. H. S. Frankau relinquishes the temporary rank of Lieutenant-Colonel on ceasing to command a Casualty Clearing Station.

Capt. N. C. Rutherford to be acting Lieutenant-Colonel whilst commanding a Field Ambulance.

Capt. E. D Gairdner, D.S.O., to be Major.

Lieut. W. E. Evans to be Captain.

ROYAL AIR FORCE.

Medical Branch.—Granted temporary commissions as Captains: E. G. Fearnsides (to be hon. Major), R. B. Lilly, H. P. Helsham (Capt., R.A.M.C.), B. H. Swift, M. E. H. Wale. Granted temporary commissions as Lieutenants: E. E. Rollins, A. E. Collie, E. F. Wilson, S. A. Clark.

Dental Branch.—Granted temporary commissions as Lieutenants: H. O. Salt, H. H. Chapman, G. H. W. Randell.

Medical News.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At a special Second Examination for the degree of Bachelor of Medicine the following candidates were successful:—

Anatomy and Physiology.—John Neville Alexander, Francis Joseph Benjamin, Oliver Colville (second-class honours), Edward Thomas Colville (second-class honours), Thomas William King Dunscombe, Donald Falconer Hocken, James Joseph Laydon, Morris Mickler, Kenneth Moncrieff, Robert John Perring, and Sydney Terry Pybus.

UNIVERSITY OF BRISTOL.—At a supplementary First Examination for the degrees of M.B., Ch.B., recently held, Eric Cecil Keevil Kenderdine and Carrie Hooper Osmond were successful.

THE BELL FUND.—Dr. S. A. Kinnier Wilson asks us to acknowledge a donation to the Dr. J. H. Bell Fund of £1 1s. from Dr. S. H. Belfrage. Subscriptions should be sent to Dr. Wilson, at 14, Harley-street, London, W. 1.

GUY'S HOSPITAL MEDICAL SCHOOL.—The following scholarships have been awarded:—Senior Science Scholarships for University students: £75, Joshua Harold Burn, Emmanuel College, Cambridge; £35, Malcolm Henry MacKeith, Queen's College, Oxford. Junior Science Scholarships: £120, Edwin Charles Warner, Guy's Hospital; £50, Maurice Burkett Goolding. Guy's Hospital Scholarship in Arts: £100, Charles Skinner Hallpike, St. Paul's School.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The following scholarships have been awarded:—Senior Entrance Scholarship in Science (value £75): C. L. Pasricha, Caius College, Cambridge. Junior Entrance Scholarship in Science (value £100): B. M. Tracey, Monkton Combe School, Bath. Entrance Scholarship in Arts (value £100): J. Maxwell, Highgate School. Jeaffreson Exhibition (value £50): N. E. Laurence, Queen's Royal College, Trinidad.

CENTRAL SURGERIES IN BATTERSEA.—In order to release doctors of military age for service with the Forces the Local Medical War Committee, in conjunction with the Minister of National Service, proposes to establish central clinics in the metropolitan borough of Battersea. For this purpose the borough has been divided into three districts—east, south, and west—and practitioners have been appointed as organisers in each. In the southern district the centre proposed is the Bolingbroke Hospital, the governors having given their permission for the hospital to be used for the purpose. Six doctors have been nominated to take the evening surgery in rotation, and it is suggested that all panel lists should be pooled and the patients asked to attend at the centre instead of at the doctor's surgery. The London Insurance Committee have been asked to notify the insured persons of the proposed change. The number of practitioners on the panel in the three divisions referred to is 23, and the number of insured persons on their lists is 41,554, and the Committee, while realising that an emergency has arisen which must be met in some radical manner, find that the scheme involves a great change in the policy of administering the National Insurance Act, to which they cannot assent without further inquiry. This inquiry is now being conducted in close coöperation with the Local Panel Committee.

Appointments.

BOWHAY, ALBERT, M.D. Durh., L.R.C.P., M.R.C.S., D.P.H. Cantab, has been appointed Temporary Medical Officer for the Bere Ferrers District by the Tavistock (Devon) Board of Guardians.

PATTERSON, NORMAN, F.R.C.S., Throat, Nose, and Ear Specialist at the Willesden Municipal Hospital.

Vacancies.

For further information refer to the advertisement columns.

Barrow-in-Furness, North Lonsdale Hospital.—Second H.S. £250.
Bath, Royal Mineral Water Hospital.—Res. M.O.
Bolton Union, Townley's Auxiliary Military Hospital, Farnworth, near Bolton.—Female Asst. M.O. £300.
Bournemouth, Royal Victoria and West Hants Hospital.—Res. M.O. £400.
Bristol General Hospital.—Physician.
Bristol Royal Infirmary.—H.P. and H.S. £120.
Carlisle City, Maternity and Child Welfare.—Female Asst. M.O. £425.
Carlisle, Cumberland Infirmary.—Female H.P. £250.
Central London Ophthalmic Hospital, Judd street, W.C.—H.S. £50.
Derby Mental Hospital.—Asst. M.O. £350.
Dorset County Council Education Committee.—School Dentist. £300.
Dudley, Guest Hospital and Eye Infirmary.—Asst. H.S. £120.
Dumfries and Galloway Royal Infirmary.—Asst. H.S.
Great Northern Central Hospital, Holloway-road, N.—H.S. £100.
Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. 30 guineas.
Huddersfield County Borough.—Female Asst. M.O.H. £400.
Kensington Board of Guardians' Institution, Marloes-road, W.—Sec. Asst. Res. M.O. £325.
Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Second Res. M.O. £200.
Manchester, Ancoats Hospital.—H.P. £200.
Manchester Education Committee.—Two Temp. Asst. Sch. M.O. £400.
Manchester Royal Eye Hospital.—Sen. H.S. £150.
Manor House Orthopædic Hospital, Hampstead.—Res. M.O. £300.
Margate, Royal Sea Bathing Hospital for Surgical Tuberculosis.—Surgeon. £200.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Res. M.O. Also Jun. H.P.
Norwich, Norfolk and Norwich Hospital.—H.P., H.S., and Res. M.O. £400 each.
Nottingham General Hospital.—Female Cas. H.S. £250.
Plymouth, South Devon and East Cornwall Hospital.—M.O. for Venereal Diseases Department. £500.
Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O. Also H.S.
Rhondda Urban District Council.—Dental Surgeon. £300.
Royal Free Hospital, Gray's Inn-road, W.C.—H.S. £50.
Royal Free Military Hospital, Gray's Inn-road, W.C.—Asst. Res. M.O. £250.
St. Pancras South Infirmary, Pancras-road, N.W.—Female Asst. M.O. £300. Or Female L.T. 7 gs. p.w.
Scottish Women's Hospitals.—Female Asst. M.O.'s for France and Greece. £300.
Sheffield Royal Infirmary.—Res. S.O. £200.
Stoke-on-Trent County Borough.—Asst. Tuberc. O. £400.
Swansea Hospital.—H.S. £250.
Wigan Infirmary.—Jun. H.S. £225. Also Surgical Dresser. £150
Winchester, Hampshire County Council.—Temp. Asst. M.O.H. £400.
York City.—Temp. Tuberc. O. £350.

Births, Marriages, and Deaths.

BIRTHS.

ALDERSON.—On Sept. 26th, at West Cross, Merstham, the wife of Captain G. G. Alderson, R.A.M.C., of a son.

MOBERLY.—On Sept. 8th, at "Chudleigh," Ewell road, Surbiton, Surrey, the wife of Alan V. Moberly, M.R.C.S., L.R.C.P., of a son.

STRAHAN.—On August 30th, at Hong-Kong, the wife of Stuart Séguin Strahan, M.B., of a son.

MARRIAGES.

COOPER—MCKENDRICK.—On Sept. 25th, at Whippingham Church, Isle of Wight, Anthony Ashley Cooper, Temp. Capt., R.A.M.C., to Henrietta Learmont (Rita) McKendrick, fourth daughter of the late Walter McKendrick and Mrs. McKendrick, of "Runrog," Haggcrescent, Johnstone, Renfrewshire.

LLOYD-WILLIAMS—INGLIS.—On Sept. 23th, at Corstorphine, Midlothian, Bertram Lloyd-Williams to Dr. Isabel Inglis.

DEATHS.

GERMAN.—Killed in action, on Sept. 18th, Major Hugh Bernard German, M.C., R.A.M.C., late Surgeon, Royal Navy, aged 38 years.

GRIFFITH.—On Sept. 24th, at the Homestead, The Colony, Lingfield, Surrey, Alfred Hume Griffith, M.D. Edin., D.P.H. Cantab, aged 43.

HOWARD.—Killed in action in East Africa, on Sept. 6th, Charles Reginald Howard, M.D. Cantab., Captain, R.A.M.C., attached King's African Rifles.

SHAW.—On Sept. 30th, in London, Sir Doyle Money Shaw, K.C.B., R.N., late Inspector-General of Hospitals and Fleets, in his 88th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Short Comments, and Answers to Correspondents.

THE RATAN TATA FOUNDATION FOR SOCIAL SCIENCE.

Sir Ratan Tata, whose death we recently recorded, was one of the comparatively rare rich men willing to endow research into poverty and destitution, without which radical (as against merely palliative) treatment of social disease is not possible. The Ratan Tata Foundation of the London School of Economics, under the guidance of two able sociologists, Professor L. T. Hobhouse and Professor E. J. Urwick, has conducted a series of investigations which have added greatly to our knowledge of social conditions and afford good examples of the newer methods in social study.

There are two chief differences between the economists of to-day and those of a past generation. In the first place, much less confidence is placed in long trains of deductive reasoning and there is a closer checking at every stage by observed facts. Thus, the older writers—Mill, for example—dogmatised that where work was undertaken to supplement the employment on which a family was mainly dependent a lower wage would be accepted than would be the case if the family had no other means of livelihood. The Ratan Tata Foundation, inquiring into the condition of the home workers in East London, found that the reverse was true. Of the women in the tailoring trade who worked to supplement their husband's wages one-half were being paid good rates; whilst of the women who were entirely dependent on their earnings only a quarter were well paid. The explanation was that the latter dared not stop their work, whilst the former could do so "at a pinch," and therefore stood out for better money.

The second mark of the newer school of economists is that they pay much more attention to the psychology of industrial conditions. Ruskin long ago warned his contemporaries that many of their deductions were valueless because they had posited a non-existent "economic man." Mr. R. H. Tawney, who has written for the Ratan Tata Foundation two monographs on the working of the Trades Boards Act, expresses the truth very neatly: "Economic processes are not reducible to sums in simple arithmetic. The reaction which follows an increase or reduction in wages is not merely quantitative but qualitative ..... The consequences are comparable to the effect not of mechanical stresses, but of chemical reactions. There is more in the result than appears in the components, an unknown factor whose operation defies deductive reason." He illustrates this by a large body of testimony from employers that higher wages often mean better output and therefore lower cost of production. "To be well paid gives the workers dignity and self-respect. They *think* they are worth more, and therefore they are worth more."

Such investigations and publications as those of the Ratan Tata Foundation are introducing a new and sounder social science.

PARAFFIN THERAPY.

MELTED paraffin has a lower specific heat capacity than that of water—roughly, about one half, and lower for the harder paraffins—and can hence be applied to the body at a higher temperature. It also shrinks as it cools, and so makes a slight equal pressure on the tissues beneath. These characters give it advantage in the treatment of swellings and stiffness of joints, which are thus treated by it in St. Anne Hospital at Toulon, as we are told in the *Archives de Médecine Navale* for August. This use of paraffin (paraffintherapy) has been adopted by the French Admiralty. It was introduced by Dr. Barthe de Sandfort, who also introduced ambrine for the treatment of burns, and was formerly a medical officer in the French Navy. There is a room in that hospital for this treatment. A large tank of melted paraffin is the central feature. In it are two coils, one (steam) for raising the temperature to 120° C. (248° F.) to sterilise it, the other (cold water) to reduce its temperature to the practical limit of 53°-50° C.) (127°-122° F.). The melted paraffin is either put into baths in which is immersed so much of the patient as is necessary, or the patient being laid on a sheet, the hot liquid is poured over him by jugs or ladles. A patient with a stiff knee, for example, will every day for the first week have his knee dipped in a bath and removed, dipped a minute later and removed, until his leg is encased in paraffin, when he rests for half an hour or so and has his paraffin case removed, as is easily done, the case being separated by the free sweating which occurs. After the first week the treatments come every second day, and at the end of a fortnight his knee should be well—that is the usual experience. Heat somewhat prolonged, equable pressure, sweating—these are the factors which are supposed to account for the so frequently successful results. The diseases treated are swellings, stiffnesses, contractions of joints and fibrous ankyloses; neuritis, phlebitis, neuralgias, and arthritis, whether gonococcal, gouty, or rheumatic, and whether acute, subacute, or chronic. The treatment does not exhaust the patient, but increases his appetite, and the paraffin, constantly sterilised, is but little wasted. The *Archives de Médecine Navale*, from which we quote, reports this treatment as a definite therapeutic advance.

THE ZEEBRUGGE MOLE.

WE have received from Messrs. Pain and Co., 17, Farringdon-avenue, London, E.C., a copy of a little poem by Mr. Sydney Lee entitled "Well Done, *Vindictive!*" and celebrating the raid on Zeebrugge on the eve of St. George's Day of this year. The poem is a picturesque and vigorous piece of verse, the "doggerel" style being reminiscent of the old chanty. The closing verse illustrates the rough directness of the author:—

> "Now Britons! when you wish to stir the blood within your veins,
> Just chuck all thoughts of business, your losses and your gains,
> And remember the *Vindictive*, and tell the boys around
> Of those deeds of British valour that made the World resound."

The poem is published at the price of 6*d.* for the benefit of King George's Fund for Sailors.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.1.

MEETING OF SECTION.

Thursday, Oct. 10th.

NEUROLOGY (Hon. Secretaries—C. M. Hinds Howell, E. G. Fearnsides): at 8.30 P.M.

Discussion:

A Discussion will be opened by Dr. Wilfred Harris on "Causalgia, and its Treatment."

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Oct. 10th.—5 P.M., Chesterfield Lecture:—Dr. M. Docarell:—Eczema in all its Stages.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Public Health Problems under War and After-war Conditions (each Lecture will be followed by a Discussion):—

WEDNESDAY, Oct. 9th.—4 P.M., Prof. A. Keith: Anthropometry and National Health.

Communications, Letters, &c., to the Editor have been received from—

B.—Mr. J. Burns, Edinburgh; Dr. C. Burland, Liverpool; Capt. W. G. Ball, R.A.M.C.(T.); Capitano Medico Prof. Dr. G. Breccia; Major Gen. Sir David Bruce, K.C.B.; British Fire Prevention Committee, Lond.; Board of Agriculture and Fisheries, Lond.

C.—Capt. J. Campbell, R.A.M.C.; Dr. J. R. T. Conner, Lond.; Mr. A. L. Clarke, Hastings; Chicago School of Sanitary Instruction; Mr. F. R. Cave, Okehampton; Capt. J. C. Clayton, R.A.M.C.; Major H. A. Cookson, R.A.M.C.(T.)

D.—Dr. L. Doncaster, Cambridge; Mr. A. C. J. Dalby, Avonmouth; Dr. A. B. Dunne, Doncaster; Dept. of Scientific and Industrial Research, Lond.; Dr. S. Davies, Woolwich; Capt. S. C. Dyke, R.A.M.C.

E.—Dr. A. B. Elliott, Abergele; Dr. F. W. Edridge-Green, Lond.

F.—Major M. Foster, R.A.M.C.(T.)

G.—Mr. J. W. G. Grant, Lond.; Dr. J. Gairdner, Crieff.

H.—Dr. J. S. Haldane, Oxford; Prof. W. Hall, Bristol; Capt. R. Hall, R.A.F.; Mr. J. T. Henderson, Pietermaritzburg.

I.—Insurance Committee for the County of London.

K.—Kensington, Medical Officer of Health of.

L.—Dr. H. Lyon-Smith, Lond.; Mr. S. M. Lawrence, Gravesend; Mr. E. M. Little, Lond.; Local Government Board and Scottish Office, Lond.; Mr. A. H. Long, Lond.; The Library Press, Ltd., Lond., Director of; London Units of the Scottish Women's Hospitals for Home and Foreign Service.

M.—Dr. H. Mackenzie, Lond.; Medical Supply Association, Lond.; Munitions Inventions, Lond., Controller of; Councillor MacLachlan, Lond.; Capt. S. A. Moore, N.Z.M.C.; Metropolitan Public Gardens Association, Lond.

N.—National Food Reform Association, Lond., Hon. Sec. of; National Hospital for the Paralysed and Epileptic, Lond.

P.—Mr. R. K. Phillips, Lond.; Pharmaceutical Society of Great Britain, Lond.; *Pearson's Magazine*, Lond., Editor of; Major H. P. Pickerill, N.Z.M.C.; Mr. S. G. Papadopoulos, Lond.; Mr. J. W. Phillips, Seattle.

R.—Dr. R. R. Rentoul, Liverpool; Dr. C. H. Roberts, Lond.; Dr. V. I. Russell, Lond.; Royal College of Physicians, Lond., President and Fellows of; Royal Institute of Public Health, Lond.

S.—Mrs. F. G. Saint, Lond.; Capt. J. L. Stoddart, M.C., U.S.A.; St. John's Hospital, Lond., Sec. of; Mr. T. P. Smith, Bolton; Mr. D. F. Steel, Glasgow; Major J. J. M. Shaw, R.A.M.C.

T.—Mr. W. S. Tietjen, Lond.; Dr. W. A. Turner, C.B.; Capt. J. G. Thomson, R.A.M.C.; Mr. H. Teggart, Glasgow; Mr. R. D. Telford, Manchester.

U.—U.S. Public Health Service, Hygienic Laboratory, Washington.

W.—Dr. L. Williams, Lond.; Mr. J. F. Ward, Lond.; Major R. A. Willcocks, A.I.F.; Dr. C. E. Wheeler, Lond.; Mr. T. Wing, M.P., Lond.; Mr. C. Wilson, Lond.; Dr. J. R. Whitwell, Melton.

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